Drug and Cosmetic Industry

October 1956 Vol. 79 No. 4

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"How will you have your tranquilizer today, Mr. Jones, lemon peel or olive?"

Keeping Posted

Restrictive Sales and the FDA

Telling the members of the National Association of Retail Druggists that "the solution to restrictive sales problems does not lie in the Federal Food, Drug, and Cosmetic Act," Dr. Albert H. Holland Jr., medicalr director, Food and Drug administration, continued:

"Yet for all of the fact that the Food and Drug Administration is not a party to this argument, we seem to be in the unhappy position of having our actions and decisions misinterpreted to suit the particular needs of special groups. This is truly unfortunate because those who attribute or assume a special connotation to our actions are deluding themselves. I can assure you there are only two reasons for any and every action we take. The first object is to protect the public health and welfare, The second is to fairly and properly administer the law we are sworn to uphold."

Since it is in the transfer of prescription items to over-the-counter sale that the actions of the FDA have been severely criticized by retail pharmacy interests foremost in the restrictive sale controversy, Dr. Holland explained the procedure:

"Since there seems to be some misunderstanding about it, I should like to briefly review the procedure involved in converting a prescription drug to over-the-counter status. It is complicated, it is demanding, and it definitely is not easy. Safety is the paramount consideration. When a firm requests such action from the Food and Drug Administration, it must submit sufficient evidence to demonstrate that the preparation can be safely used as directed for self medication. If this requirement is not fulfilled to the satisfaction of our medical and scientific staff then the firm is so advised and the matter ends there or until it meets the requirements or receives court review. If, on the other hand, the evidence appears adequate, the Commissioner of Food and Drugs causes to be published in the *Federal Register* a proposal setting forth the conditions under which the drug might be allowed to change status. All interested parties are given the opportunity of commenting. If no significant comment is forthcoming within the allotted time then a final order is prepared for *Federal Register* publication which in effect changes the status of the drug under the conditions specified. When substantial comment relating to safety is received in response to publication of a proposal to convert a drug, then the Commissioner has the privilege of reaching a decision on the facts at hand or, as has been the case recently, a public hearing can be held to further develop any pertinent facts which would aid us in reaching a final decision.

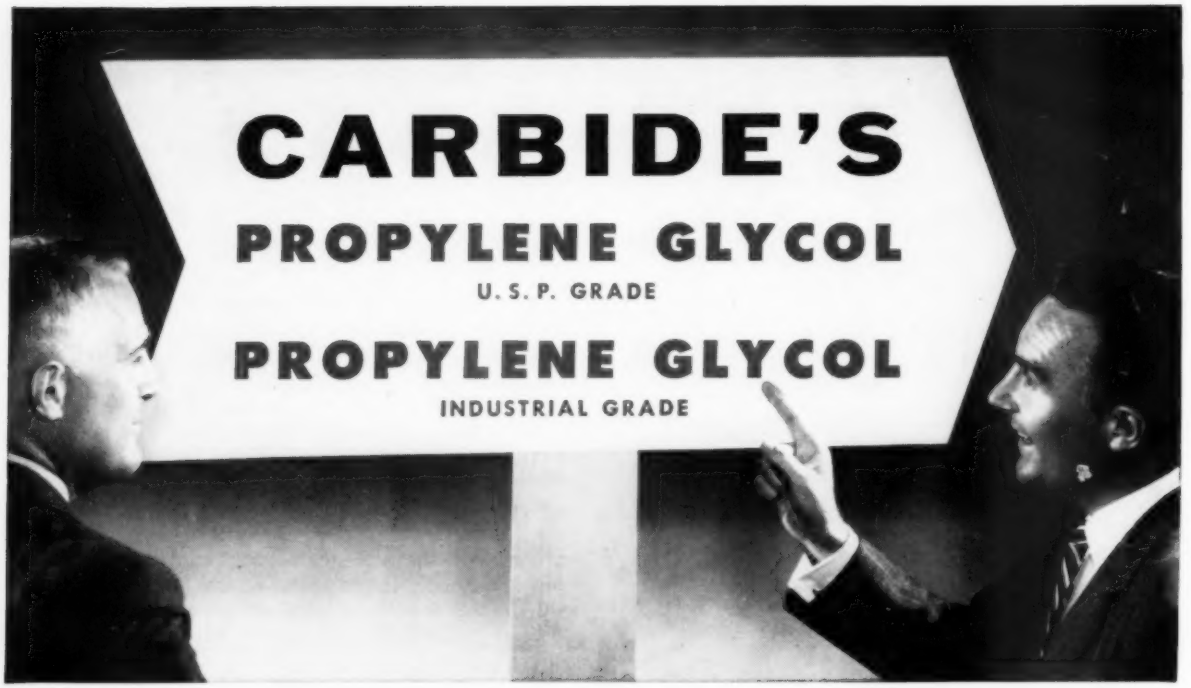
"This then is the procedure to be followed. It is lawful, it is reasonable, and it provides ample safeguards for the protection of the public. The final decision may be challenged through appropriate court proceedings."

Fair Trade Outlook

"It would be less than realistic to fail to realize that fair trade on this, its 25th anniversary, has suffered serious injury during the past year," Maurice Mermey, director of the Bureau of Education on Fair Trade, told the National Association of Retail Druggists late last month.

And how right he was in his statement since Colorado and Utah have now been added to the list of states in which the non-signer clause of the fair trade act has been declared unconstitutional. Such invalidation of the most vital part of a fair trade act means that it is virtually impossible to enforce fair trade and in such states fair trade is a dead issue.

The list of states in which fair trade acts have been overturned by the courts now numbers 13. These are: Arkansas, Colorado, Florida, Georgia, Indiana, Kentucky, Louisiana, Michigan, Nebraska, Oregon, South Carolina, Utah, and Virginia. In addition the states of Missouri, Texas, and Vermont, as well as



You're looking in the right direction

Propylene glycol U.S.P.—a glycol with proven high purity—has the excellent properties demanded by industry for pharmaceuticals, dyes, food flavors, and certain perfumes. Propylene glycol also assists in the dispersion of soaps, oils, waxes, and greases in water.

When used in cosmetic and brushless shaving creams, for example, propylene glycol enhances the softening and cleansing action on the skin and is a mild humectant for the cream. In brushless shaving creams, it aids in coupling the oils and lanolin in water.

CARBIDE also produces an industrial grade of propylene glycol that is widely used as a component of polyester resins, a coupler in hydraulic brake fluids, and as a coolant in refrigeration systems.

Carbide and Carbon Chemicals Company, producer of propylene glycol since 1931, produces thirteen other diols and triols:

- *Ethylene glycol*
- *Diethylene glycol*
- *Triethylene glycol*
- *Dipropylene glycol*
- CARBOSEAL *Anti-leak*
- KROMFAX *Solvent (Thiodiglycol)*
- *2-Ethyl-2-Butyl Propanediol-1,3*
- *2,2-Diethyl Propanediol-1,3*
- *Hexylene Glycol*
- *3-Methyl Pentanediol-1,5*
- *Hexanetriol-1,2,6*
- *2-Ethylhexanediol-1,3*
- *Pentanediol-1,5*

For further information on propylene glycol or any CARBIDE chemical, write for your copy of "Physical Properties of Synthetic Organic Chemicals" (F-6136) or the "Glycols" booklet (F-4763). Offices in principal cities—in Canada: Carbide Chemicals Company, Division of Union Carbide Canada Limited, Montreal and Toronto.

CARBIDE AND CARBON CHEMICALS

Carbide and Carbon Chemicals Company
A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.

The terms "Kromfax" and "Carboseal" are registered trade-marks of Union Carbide and Carbon Corporation.

the District of Columbia have never had fair trade acts. This means that there is now no effective fair trade in 16 states, leaving 32 states still having valid fair trade statutes. However, only 12 of these have been upheld by their highest state courts, while in many of the remaining states, they are being challenged.

At a closed meeting of 30 of the nation's top lawyers on fair trade, Mr. Mermey said that the following conclusions were reached: 1) the concepts embodied in the fair trade law are more urgently needed in today's marketplace than ever before; and, 2) new legislation must be developed to overcome the adverse court decisions on fair trade. Following this action: "The Bureau took the initiative in calling together a shirt-sleeve panel of lawyers and economists from all over the country to sit down together and actually draft new legislative proposals," said Mr. Mermey. "We are not going to present these drafts to you because they are still in the drafting board stage. They are being turned over to a top-notch law school for exhaustive research on whether they meet all constitutional requirements, state and federal. All the friends of fair trade, I am sure, want whatever new legislation emerges from all the drafting, researching and redrafting to do the job it is designed to do—namely, to safeguard small business from destructive price-warring and to safeguard trademarks from debasement through unfair competition. So we want to test this new legislation in every possible way before, rather than after, it is enacted.

"The many experts which the Bureau has consulted have concluded that it is premature to seek new federal legislation to overcome the adverse state court decisions. They believe that the wisest and most practical course is to seek new legislation in states where fair trade has been rendered ineffective by court decision. The question of when and how to seek new federal legislation is a matter of timing and strategy which Dr. Dargavel will decide in light of his wealth of political experience. Meanwhile, the Bureau is laying the groundwork for a broad, nationwide campaign to get across to the public and the legislators the facts on small business. For the concepts of fair trade must be understood in their relation to small business and its vital role in the economic well-being and expansion of America.

"The Bureau of Education on Fair Trade believes it has a secret weapon which will unmask those retailers who are masquerading as champions of the consumer and, in this role, opposing fair trade. This weapon will be forged through research. It is not advisable to disclose the nature of this research but you can be sure it will be made available to legislative committees. This research is part of a major program now being developed to help restore the effectiveness of fair trade."

Fragrance Advertising Reports

Reports of the results, thus far, of the 39-week advertising campaign being conducted by the Fragrance Foundation in three test cities—Columbus, Ohio; Denver, Colo.; and Richmond, Va.—were given to members of the Foundation at its annual meeting held last month. Five fragrance manufacturers and three executives of important retail stores in the test areas reported on their reactions and results of the T.V. advertising program.

Neil DuBois, account research director of Foote, Cone & Belding, reported on the results of "on-the-spot" interviews conducted among approximately 45 sales people of drug, department, and specialty shops and 345 consumers in the three cities. He said that fifty to sixty per cent of the stores queried reported sales increases based on the same period of last year, and of the consumers questioned, up to 20 per cent said they were wearing perfume more often than before.

Member manufacturers of the Fragrance Foundation who spoke were: Edouard Cournand of Parfums-Lanvin; Joseph Danilek of Mary Chess; Matthew J. Middleton of Parfums Ciro; William Ohme of Lentheric; and H. Gregory Thomas of Chanel. They stressed the importance of stronger cooperation between retailers and manufacturers in order to promote a more successful T.V. campaign. It was further added that the campaign is certain to result in greater retailer awareness of the sales potential in their fragrance departments.

Myrtis Harris, merchandise manager of Thalimers of Richmond, said that although the advertising campaign is a step in the right direction, there is a great deal more to be done at the point of sale. She stated, however, that Thalimers' dollar sales in eight fragrance lines, in perfume only "doubled in August over July, and July sales almost equalled June, which is a natural gift month." These results, she said, were most encouraging, particularly since her store ran no perfume advertisements or promotions during August. "Sales personnel," she added, "have shown great initiative and imagination in their displays," and she told of how they have been constantly alerted to the importance of the T.V. program and its slogan, Perfume Is For Wearing Every Day.

Jan-Theil Ruthenberg, merchandise manager of Neusteter's, Denver, said that 1956 liquid fragrance sales in his store increased 20 per cent in May, 15 per cent in June, and five per cent in July, compared with the past few years. He added that although the toilet goods department as a whole showed an increase during those last years, fragrance was "fairly static," and said he felt that current fragrance sales increases are a "direct result of the T.V. spots." Even more can be accomplished by greater coordination between the Foundation, retailer, and individual member, he said, stressing the need for continuation of the program.

James Miller, merchandise manager of F. & R. Lazarus, Columbus, said that, based on a 13-week period, from April 30 to July 28, this year, fragrance sales in his store showed a 16.1 per cent increase. In the same period of 1955, fragrance sales were 27.2 per cent of the toilet goods sales, while this year they were 29.5 per cent of the department's total.

Roger Pryor, vice-president in charge of radio and television for Foote, Cone & Belding, said he felt that network is not indicated for fragrance advertising for several reasons, including that of cost plus the fact that such nationwide coverage would result in advertising in "forced market areas." He added that the fragrance industry has not taken full advertising

LATEST EDITION

Laboratory Data Sheet

VITAMIN A 'ROCHE'

Liquid vitamin A palmitate and acetate
Dry vitamin A acetate
Dry vitamin A and D_2

Roche has all popular types for your manufacturing needs

Summarized below for your convenience are facts about the many types of Roche vitamin A and vitamin A & D combinations which meet practically all pharmaceutical needs. Samples and technical literature are yours on request — without charge, of course. Ask your Roche salesman or write.

	Type & Name	Usage	Potency (in U.S.P. units per gram)	Additive	Stability	Mes Siz
LIQUID TYPES	**P1MO** **Vitamin A palmitate** *(liquid)*	In tablets, aqueous dispersions, capsulated products	1,000,000	Edible oil only, for standardization	Excellent	–
LIQUID TYPES	**P1MO/BHA** **Vitamin A palmitate** *(liquid)*	as above	1,000,000	Edible oil plus antioxidant (butylated hydroxy-anisole). Note 1.	Excellent	–
LIQUID TYPES	**P1.3** **Vitamin A palmitate** *(liquid)*	For oil-free prepara-tions	1,350,000 to 1,450,000	None	Excellent	–
LIQUID TYPES	**A1MO** **Vitamin A acetate** *(liquid)*	In oil solutions and gelatin capsules	1,000,000	Edible oil only, for standardization	Excellent	–
SPECIAL	**Type P1.8** *(liquid)* **Vitamin A palmitate**	For research and special production	1,650,000 to 1,800,000	None	Needs special handling	–
SPECIAL	**Type A2.9** *(crystalline)* **Vitamin A acetate**		2,800,000 to 2,900,000	None	Needs special handling	–
DRY TYPES	**Type 325A-32.5D** **Vitamin A acetate &** **Vitamin D_2** *(dry)*	For tablets, capsules, vitamin-fortified powdered supplements	A—325,000 D_2—32,500	None	Excellent	40 and 60
DRY TYPES	**Type 325** **Vitamin A** *(dry)*		325,000	None	Excellent	40 and 60
DRY TYPES	**Type 500** *(dry)* **Vitamin A acetate**	For dry prepara-tions: tablets, capsules, vitamin-fortified powdered supplements	500,000	None	Excellent	40 and 60
DRY TYPES	**Type 500A-50D** **Vitamin A acetate &** **Vitamin D_2** *(dry)*		A—500,000 D_2—50,000	None	Excellent	40 and 60

Note 1 { Antioxidant added at 10 mg. per 1,000,000 units of vitamin A.

Packaging { All Roche vitamin A is packaged to insure safety in transit and ease of handling in pharmaceutical operations.

Vitamin Division

HOFFMANN-LA ROCHE INC.

Nutley 10, New Jersey NUtley 2-5000

Pacific Coast distributor: **L. H. BUTCHER COMPANY** • San Francisco • Los Angeles • Seattle • Portland Salt Lake City • *In Canada:* Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec

Reprints of these data in 8¾" x 11" size are available on request. These can be used in the new Roche loose-leaf catalog, or in any standard 3-ring binder.

advantage of the three major changes that have taken place in the last ten years: 1) population growth; 2) great shift in population; 3) increased purchasing power. He concluded that, "if this great new population and purchasing power potential is to be properly exploited in the name of fragrance to the end that the philosophy of 'fragrance for the few' will come to an end, I submit that T.V. in some form is a must."

Coty Gives Sales Figures

Coty, Inc., for the first time has published its sales figures. Reporting for the fiscal year ending June 30, 1956, sales are given at $24,100,671, up 5.6 per cent from the 1955 fiscal year when sales totaled $22,725,031. However, net earnings for the last fiscal year were only $283,549, down 62 per cent from earnings of $753,337 from the previous year.

This explanation is given to stockholders:

"The huge success of some TV programs of our competitors has forced us into increasing considerably our advertising budget, with the result that for the time being it has affected our profit picture. However, your company is making some radical changes in its marketing policies in line with modern trends. Lately we have been reshaping our organization according to the concept of what is known as "product planning and management." Essentially, this means that our promotional activities will put emphasis mainly on specific products. To this effect, we have hired new competent experienced personnel, and are greatly expanding our research activities."

Once Over Lightly

Skimmed through Europe this past Summer hitting parts of Spain, France, Germany, Switzerland, Austria, and Italy. We wish to report that Venice, said to have today the same population that it had several hundred years ago, and now protecting its inhabitants by rent laws, has buses and taxis on the canals as well as a stop light. Also the Coca-Cola truck plies the canals of Venice.

Although we were not able to obtain it in the places in Spain where we tried, we found Phillips Milk of Magnesia to be available in all the other countries. As far as Bufferin is concerned, the only place we found that was in Switzerland—a place where dollars can be obtained for the asking also.

Spain is lovely, the people are most friendly, and prices are low; Paris is beautiful but very expensive; German cleanliness, thoroughness, and practicability strike you forcefully in that country; Switzerland has everything—good money, good food, dignified but most friendly people, beauty, and most anything else you could desire; Italy, we understand, has come a long way, but they are still struggling as they have further to go. However, we received excellent treatment in the two weeks we were in that country, although prices are rising sharply and Rome is much more expensive than it was.

We learned that the Farmacia (drug store) of Spain is pronounced "Far-mock-ia" with the accent on the second syllable, while in Italy this same word is pronounced "Far-ma-chee-a" with the accent on the next to the last syllable.

The Italian money is improving somewhat through the issuance of more coins, but the bills remain frightful, and the 5,000 and 10,000 lira bill are still the size of pieces of wallpaper. In some of the Italian hotels in which we stayed, at times we couldn't get a twenty dollar travelers' check converted into lira, and sometimes not even a ten dollar one converted. We never found out if the hotels were afraid to have too many lira on hand for fear the lira might be further devaluated, or because they might be robbed. Whatever the reason, it was a most annoying condition.

Coca-Cola was one thing which we ran up against no matter where we were. Also, its surprising to see natives of India and other countries order Coca-Cola with their meals. Upon seeing this we realized why the wine interests of France, and probably of other European countries, have no love for Coca-Cola. Pepsi-Cola was available in some places, but not many. We came to believe the slogan "And ice-cold Coca-Cola is everywhere."

ADNA-APMA Merger Status

Continuation of the talks leading to a possible merger of the American Drug Manufacturers Association and the American Pharmaceutical Manufacturers' Association was decided upon last month by the Interassociation Relations Committee of the ADMA and the APMA, which is the official name of this committee. Problems which arose during discussions within the committee are outlined in the statement which the committee issued:

"The Committee carefully explored further the desirability and feasibility of the creation of a new association replacing the present ones. Prior to the meeting the committee members from both the APMA and the ADMA were requested to list all comments, favorable and unfavorable, as reported by various members since the last meetings in June. These included the structure of the new organization; membership on the governing board; continuity, rotation, and tenure of service of officers and directors; means of assuring adequate voice for all members regardless of size; status of APMA associate members; etc. The discussions indicated the possibility of achieving solutions to major issues.

"As a result, the Committee voted to continue deliberations and to attempt to reduce the generalities to specific recommendations to be submitted in due course to the memberships of both associations after consideration of the proposals by their respective governing bodies.

"The Committee is hopeful that a full report can be prepared in time for discussion at the Winter meeting of the APMA and the January meeting of the ADMA Executive Committee. If this time schedule can be maintained, the probability is that proposals may be in final form for consideration at the respective meetings of the ADMA (at Palm Springs) and the APMA (at While Sulphur) in the Spring."

The full membership of the Interassociation Relations Committee is: E. N. Beeseley (Eli Lilly and Company), Francis C. Brown (Schering Corporation),

FOR THAT

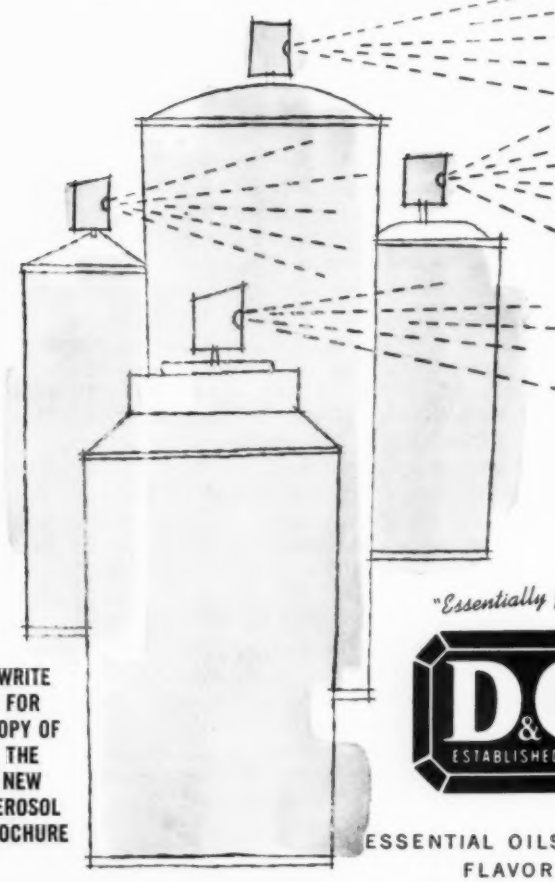
AEROSOL

IN YOUR FUTURE...

Thoroughly tested perfume compounds, developed in the D&O Perfume Department and checked through all stages to finished product in the Aerosol Laboratory. Shelf tested for stability, corrosion and clogging difficulties. Solubility and discoloration problems eliminated. Complete data, including formulations, available.

Let the D&O Perfume and Aerosol technicians put that sales-clinching (problem-free) fragrance into the "Aerosol in Your Future."

COLOGNES
CREAMS
DEODORANTS
HAND LOTIONS
SHAMPOOS
SHAVE CREAMS
HAIR LACQUERS
SPACE DEODORANTS
INSECTICIDES
PET PRODUCTS



WRITE FOR COPY OF THE NEW AEROSOL BROCHURE

"Essentially for you"

D&O ESTABLISHED 1798

Our 157th Year of Service

DODGE & OLCOTT, INC.

180 VARICK STREET • NEW YORK 14, N.Y.

Sales offices in Principal Cities

ESSENTIAL OILS • AROMATIC CHEMICALS • PERFUME BASES
FLAVOR BASES • DRY SOLUBLE SEASONINGS

Michael F. Charley (Standard Pharmacal Company), Dr. Robert K. Cutter (Cutter Laboratories), Dr. J. H. Fitzgerald Dunning (Hynson, Wescott & Dunning), William B. Graham (Baxter Laboratories), Robert A. Hardt (Hoffmann-La Roche), Leslie D. Harrop (Upjohn Company), Edgar L. Patch (Armour Laboratories), S. B. Penick Jr. (S. B. Penick & Company), Jack Schopflin (E. S. Miller Laboratories), John G. Searle (G. D. Searle & Co.), Kenneth F. Valentine (Pitman-Moore Company), Dr. Ernest H. Volwiler (Abbott Laboratories).

Richard Defends Lavender Mist

The Andre L. Richard Co., maker and distributor of Lavender Mist, has brought suit in the Superior Court of New Jersey, charging that Spencer Gifts, a mail order house in Atlantic City, N. J., by misuse of photographs and selling copy supplied by Richard, and by supplying a substitute product, is deceiving customers by the belief that they are receiving the heavily advertised Lavender Mist.

The complaint alleges that in its Spring 1956 Catalog, Spencer Gifts properly reproduced the Lavender Mist photographs and supplied the Richard product to its customers. However, in a later catalog, Spencer retouched the photographs but not sufficiently to avoid identification of the picture and copy with Lavender Mist. A substitute product was used to fill orders, it is alleged.

Still later, the complaint alleges, although continuing the use of the retouched Richard photographs, Spencer delivered a product called Lavender Sachet Mist, which Richard claims is a deliberate attempt to misappropriate the benefits of the extensive T.V. and other advertising done in behalf of Lavender Mist.

Most Important Doctors' Aids

Four doctors answered, Upjohn's Scope Weekly, the following question: "In a hypothetical situation that restricted you to no more than half a dozen diagnostic and therapeutic items for carrying on your practice, what would you select?"

A general practitioner chose: 1) stethoscope; 2) syringe; 3) broad-spectrum antibiotic, topical, oral and injectable; 4) narcotic, preferably morphine; 5) epinephrine for shock and allergic phenomena; 6) digitalis.

A surgeon chose three diagnostic aids: 1) stethoscope; 2) x-ray machine; a laboratory. Then he chose three therapeutic items: 1) morphine; 2) antibiotics; 3) intravenous fluids.

Another general practitioner chose: 1) urinalysis; 2) an opiate; 3) wide-range antibiotic; 4) pectin base with an intestinal antibiotic such as neomycin; 5) digitalis; 6) salicylic acid preparation, preferably acetylsalicylic.

A general practitioner and surgeon would take what he took when he traveled into the backwoods on hunting trips. These were: 1) cathartic pills; 2) suture material; 3) a needle and sissors; 4) sterile gauze; 5) adhesive; 6) catheter.

One of the surprising things about these answers is the continued reliance on morphine as the best pain-killer, and the continued reliance on digitalis. However, another surprising thing is it is clearly admitted that the antibiotics are absolutely indispensible even though are of recent discovery.

Time and Money

Fame is a good thing to have until it costs you time and money. Imagine one of our friends writing us: "Knowing the editorial talent for which your company is famed, I have merely sent you a rough outline of what might be embellished into a good story if someone in your organization would care to develop it." This from none other than that joker Fred Shoninger of Antoine Chiris who sent us a news release having to do with Frank Kendall becoming associated with this company. Sending us also Mr. Kendall's photograph, Mr. Shoninger writes:

"Of course, there will be no charge to your publication for this photograph which cost Mr. Kendall a lot of money, nor do we ask any royalty from you either for its publication or the publication of the story connected therewith."

FDA on Fluoride Dentifrices

The Food and Drug Administration has changed its mind somewhat as to the requirements of labeling of fluoride dentifrices. It will be recalled that some six months ago, among other things, the FDA required that:

"The labeling bears, in juxtaposition with the directions for use, clear warning statements against:

"a. Use by children under six years of age.

"b. Use if the water supply contains fluoride, except as directed by a dentist."

It is now said by the FDA that only the first part of this warning statement need appear in the labeling on the tube and carton. The statement concerning fluoride in the local water supply is not now considered necessary by the FDA because officials are of the opinion that the only hazard associated with the use of fluoride dentifrices in areas where the water supply contains fluoride is the production of dental fluorosis which might result only from use by children under six years of age.

Hospital of Tomorrow

The mission of the "hospital of tomorrow" will be to "maintain" bodies to prevent damage as well as to "repair" bodies already damaged, Dr. Theodore G. Klumpp told the annual meeting of the American Hospital Association. "Many hospitals have added, or are adding, rehabilitation services, which is a major advance. But the hospital is still only a repair shop where broken bodies are sent to be mended. Some day it will also be a maintenance shop where the most intricate mechanism in the world will be sent to find out how it can better be cared for to prevent damage."

1960 Ethical Sales $2 Billion

Combined sales of prescription drug "over-the-counter ethical" pharmaceuticals in U. S. drug stores will reach the $2 billion mark by 1960, J. Mark Hiebert,

president of Sterling Drug, Inc., told the Federal Wholesale Druggists Association last month. Dr. Hiebert contrasted that figure with what he termed the "phenomenal" dollar volume for 1955 in these two categories of slightly more than $1.5 billion Sales of prescription drugs alone accounted for $1.2 billion last year.

The market for prescription drugs in this country is "growing like Jack's beanstalk," said Dr. Hiebert. In 1955, U. S. drug stores filled 529 million prescriptions, or the equivalent of a "record" 3.2 prescriptions for every man, woman and child in the U. S., compared with a per capita average in 1948 of 2.54, and in 1937 of 1.4.

Dollar-wise, said Dr. Hiebert, prescription volume increased eight-fold, and the number of prescriptions tripled, since 1939. Between 1948 and 1955, dollar sales rose 225 per cent and the number of prescriptions, 42 per cent.

Dr. Hiebert based his prediction of a $2 billion volume by 1960 on five factors: record take-home pay of the public; population growth of 240,000 per month; rising number of chronically ill persons and the present 14 million who are 65 years of age or older; the tremendous advances of medical science and the development of "wonder" drugs; and the public's increased health-consciousness.

Cosmetic Excise Taxes Up

Cosmetic retail excise taxes for the fiscal year July 1, 1955 to June 30, 1956 were reported last month by the Treasury Department. Taxes for the fiscal year ended June 30, 1956 totaled $83,776,000, an increase of almost 17 per cent above the $71,829,000, collected the fiscal year ended June 30, 1955. Collections for the quarter, April 1 to June 30, 1956 totaled $20,105,000, a gain of 23.5 per cent over the same quarter of the previous fiscal year when collections totaled $16,256,000.

F.T.C. Cites Bourjois

Bourjois, Inc., has been charged by the Federal Trade Commission with dealing unfairly with some of its customers in granting promotional allowances. The complaint charges the company with failing to give allowances to all competing customers on a proportionately equal basis as is required by the Robinson-Patman Amendment to the Clayton Act.

The complaint alleges that the company has a standard promotional program providing for discounts up to 25 per cent for cooperative advertising and demonstrator and push money services rendered by the customer, but that some favored customers receive far more for such promotion. In some instances, according to the complaint, this amount is 210 per cent more than the standard allowances.

The standard program available to those handling the Bourjois provides: 1) for a rebate of five per cent of the customers' retail sales (paid quarterly) as reimbursement of up to 100 per cent for push money commissions paid by the retailers to his sales clerks, and 2) a cooperative allowance not exceeding five per cent of the customers' annual net purchases as reimbursement of up to 50 per cent for local advertising. Customers who carry Bourjois' Barbara Gould line receive a combined advertising-promotional allowance of 25 per cent of new purchases, reimbursement of up to 50 per cent of cost of advertising, and individually negotiated percentage amounts for push money. (The complaint states that these plans have been in effect since 1954.)

In Chicago, however, the complaint alleges in an illustration of illegal favoratism, the company had 23 competing customers in 1955; fourteen of these received standard allowances while the remaining nine received allowances ranging from 25 per cent to 210 per cent in excess of standard amounts. The nine also obtained up to 100 per cent reimbursement for local advertising. In addition, the complaint continues, some customers, in order to receive allowances, were required to execute promotional contracts and file retail sales reports while others were not. The complaint charges the company with similar discriminary practices in 1955 in Baltimore, Cleveland, Philadelphia, Atlanta, and Washington, D. C.

Dow Starts New Expansion

The Dow Chemical Company has embarked on another round of "vigorous expansion" and expects to spend considerably more than $75 million in the current fiscal year, Dow president, Dr. Leland I. Doan, told stockholders recently. Dr. Doan said that the expansion program is necessary because "we are already crowding capacity in some of our basic building-block lines such as chlorine, bromine, ethylene, power and so on." The $75 million-plus proposed for expansion compares with about $60 million spent in fiscal 1956 and $50 million in 1955, he said. New plant sites are being developed this fical year in Plaquemine, La.; Lee Hall, Va.; Hanging Rock, Ohio; and Riverside, Mo.

Third Tetracycline Patent to B.M.

Bristol Laboratories has obtained a third United States patent relating to tetracycline. This patent, No. 2,763,591, concerns a method for producing tetracycline in greater yields by direct fermentation. Inventors are Drs. A. B. Hatch, George A. Hunt, and Joseph Lein of Bristol Laboratories.

Klumpp Honorary AHA Member

An honorary membership in the American Hospital Association was awarded to Theodore G. Klumpp, M.D., president of Winthrop Laboratories, at the 58th annual meeting of the association. Honorary memberships were also awarded to Dr. George F. Lull, secretary and general manager of the American Medical Association, and Dr. Emory W. Morris, president and general director of the W. K. Kellog Foundation. In paying tribute to Dr. Klumpp, the AHA cited "the outstanding contributions you have made to the health field through exemplary, selfless service to various commissions, committees and organizations. Particularly noteworthy, it continued, was "your service on the Commission on Chronic Illness and the inspired leadership you gave to the Medical Services Task Force of the Hoover Commission."

Pharmaceutical Preparations Industry 1954

During 1954, manufacturers in the Pharmaceutical Preparations Industry shipped products valued at $1,643,000,000, an increase of 75 per cent over 1947, according to preliminary results obtained from the 1954 Census of Manufactures conducted by the Bureau of the Census, Department of Commerce (reported in Census Bulletin MC—28—3.1, for sale by Bureau of the Census, Washington 25, D.C. for 10 cents). Average employment in this industry has increased 17 per cent since 1947 to a total of 76,700 employees in 1954.

The Pharmaceutical Preparations Industry represents manufacturing establishments engaged primarily in the manufacture of drugs and medicines in pharmaceutical preparations such as ampules, tablets, capsules, ointments, solutions and suspensions, for human and veterinary use, including vitamin preparations, and galenicals such as fluid extracts and tinctures. Products of this industry consist of two important lines: pharmaceutical preparations promoted primarily to the dental, medical or veterinary professions, and pharmaceutical preparations promoted primarily to the public.

The value of shipments, as reported by establishments classified in the Pharmaceutical Preparations Industry, consisted not only of products described as primary to the industry, but also included the value of secondary products. The $1,643,000,000 total value of shipments consisted of $1,639,000,000 manufactured products and $4,000,000 miscellaneous receipts. The $1,639,000,000 included $1,495,000,000 of pharmaceutical preparations and $144,000,000 of biological products. uncompounded drugs of vegetable origin, cosmetics and toilet preparations, miscellaneous chemicals, feed supplements, etc. The $1,585,000,000 value of pharmaceutical preparations shipped includes shipments by all producers, including those primarily in other industries.

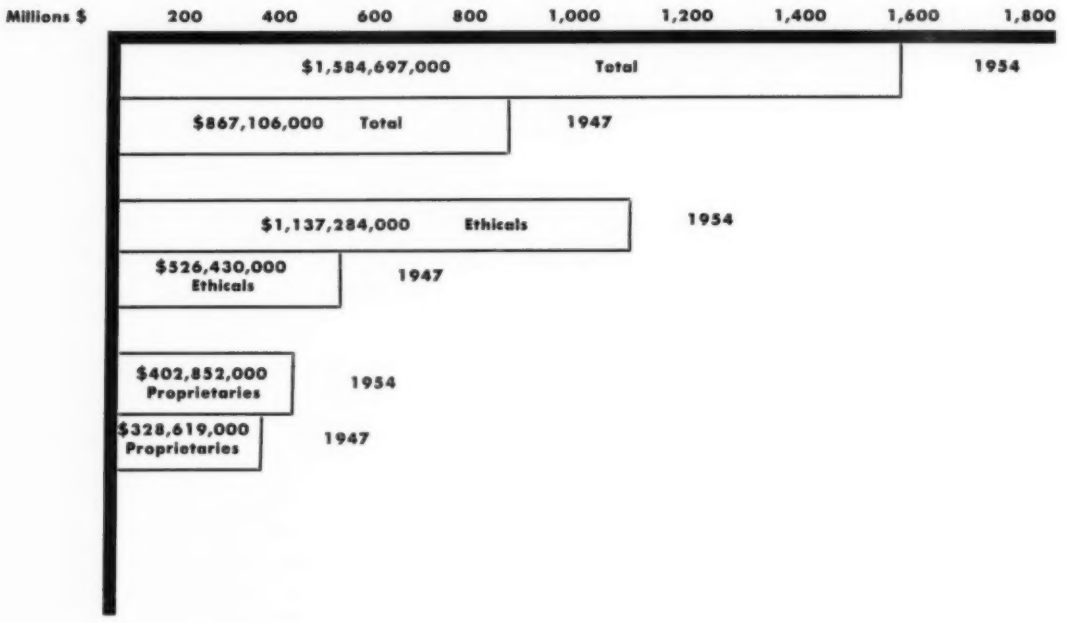
More detailed figures for this industry will appear in the Census Bulletin, MC-28C, "Drugs and Medicines," which will be published and offered for sale at a later date by the Superintendent of Documents, U. S. Government Printing Office.

For 1954, the value of pharmaceutical preparations shipped by all producers in the United States was $1,584,697,000 which included $1,137,284,000 of ethical preparations (71.6 per cent of the total), $402,-852,000 of proprietary preparations (25.4 per cent of the total) and $44,561,000 unspecified by kind. In 1947, the corresponding figures were $867,106,000 total, $526,430,000 ethical preparations (60.7 per cent of the total), $328,619,000 proprietary preparations (37.9 per cent of the total) and $12,057,000 unspecified by kind. Thus, total shipments of pharmaceutical preparations increased in value by $717,591,000 or 82.6 per cent from 1947 to 1954, shipments of ethicals increased by $610,854,000 or 116 per cent, while shipments of proprietaries increased by $74,233,000 or 22.6 per cent.

Because of the sketchy nature of the 1947 data, comparisons with 1954 for individual categories are not valid. The distribution between ethical and proprietary sales is interesting, however. In 1954, preparations such as antibiotics, hormones, anesthetics and others which were sold exclusively or almost so on a prescription basis, totalled $548,871,000, or 34.6 per cent of the total; these same items comprised 44.6 per cent of shipments of ethical products. Of those medicinal preparations that were sold in both channels, cough and cold products totalled $64,-556,000, ethical preparations accounting for $24,-448,000 or 37.9 per cent while proprietaries in this

category totalled $38,771,000 or 60.0 per cent; among antacids, $17,178,000 or 43.4 per cent were distributed ethically while $22,429,000 or 56.6 per cent were advertised directly to the public; laxatives were sold overwhelmingly through proprietary channels, $51,475,000 or 75.5 per cent being sold in this manner as against $16,727,000 or 24.5 per cent on prescription. Analgesic sales were predominately proprietary; ethical external analgesic shipments amounted to $12,861,000 or 29.5 per cent of the total of $43,549,000, while proprietary shipments equalled $22,684,000 or 52.1 per cent; proprietary internal analgesics (including aspirin and aspirin compounds) were valued at $104,361,000 or 87.0 per cent of the total internal analgesics of $120,005,000 while proprietary internal analgesics were valued at $15,644,000 (also including aspirin and aspirin compounds) or 13.0 per cent. Total vitamin shipments of $214,509,000 were divided between $171,224,000 or 79.9 per cent of ethical sales and $39,750,000 or 18.5 per cent proprietary. Where percentages do not add up properly, minor subdivisions have been omitted.—JOSEPH KALISH.

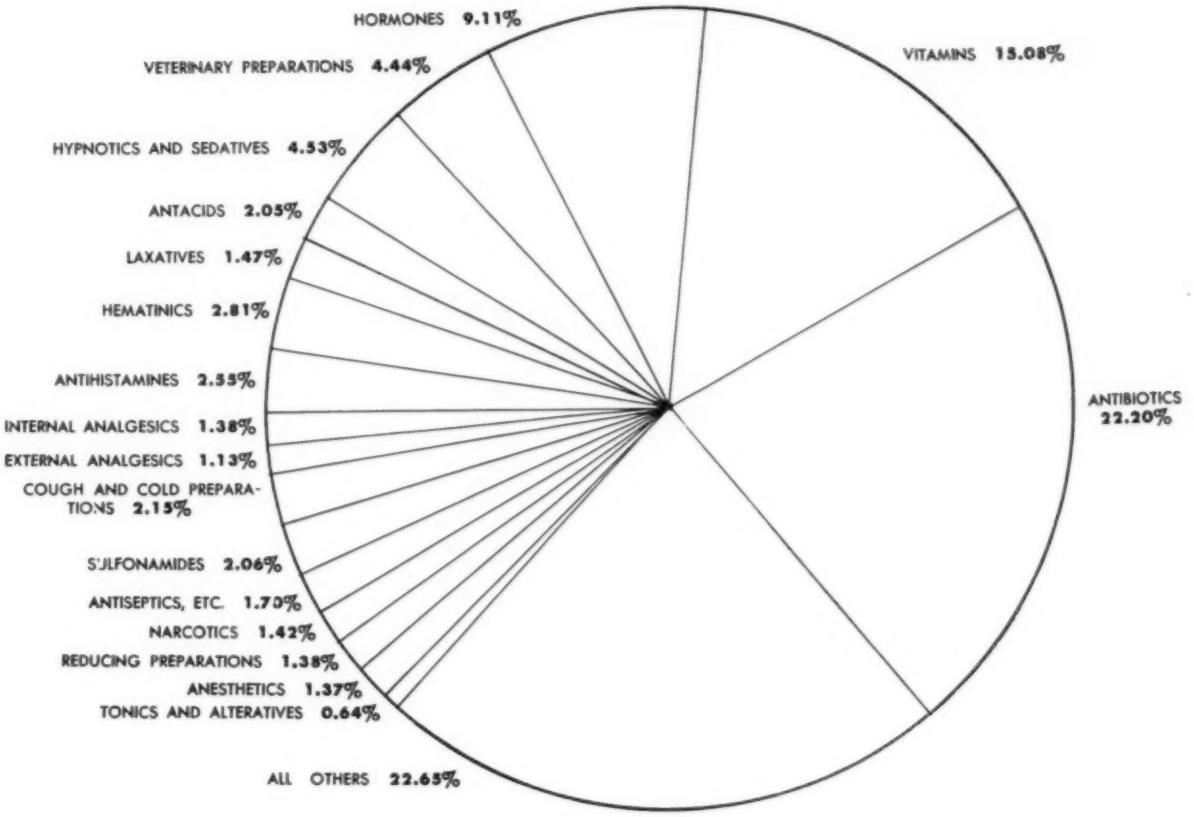
COMPARISONS OF 1954 AND 1947 PHARMACEUTICAL SHIPMENTS



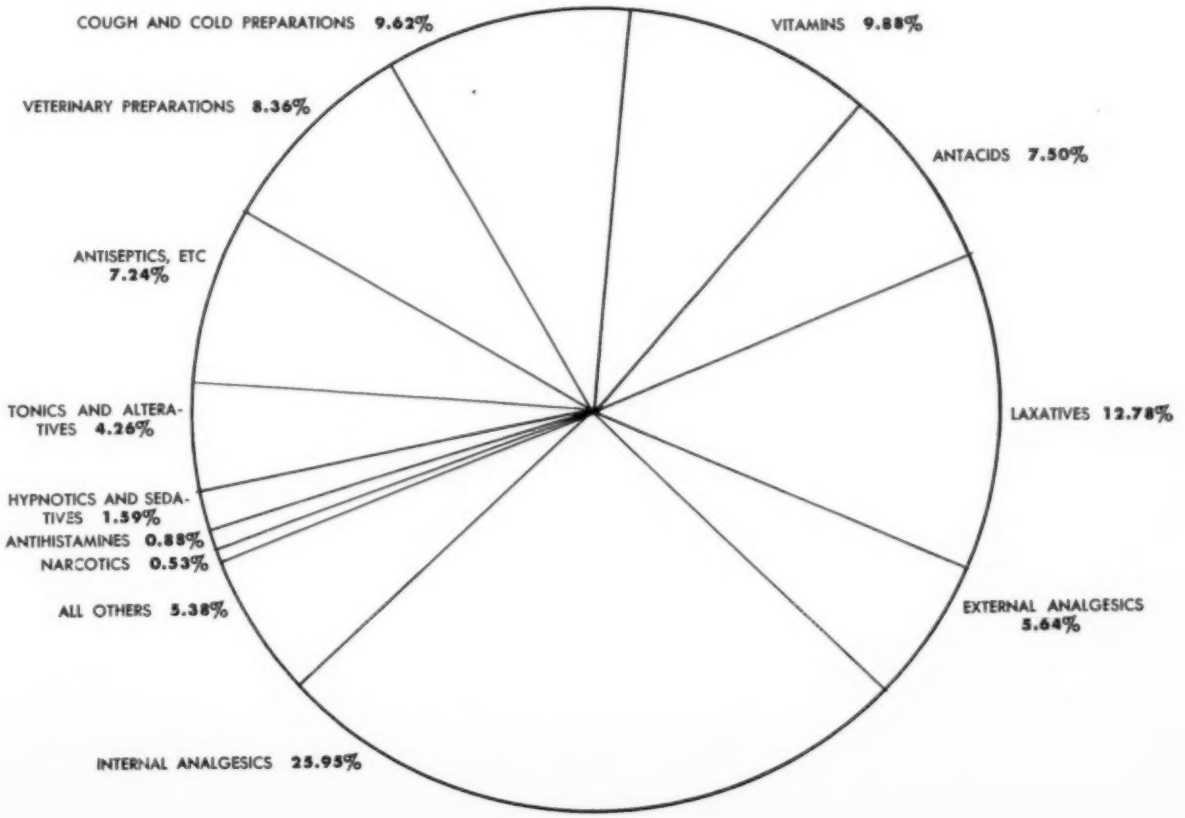
1954 VALUE OF SHIPMENTS (000 OMITTED)

	Total	Ethical Preparations	Proprietary Preparations
VETERINARY PREPARATIONS	$85,775	$49,333	$33,626
ALL ANTIBIOTICS	252,892	251,951	448
PENICILLIN PREPARATIONS	76,705	76,705	—
STREPTOMYCIN PREPARATIONS	12,769	12,769	—
OTHER ANTIBIOTICS	163,418	162,970	448
COUGH AND COLD PRODUCTS	64,556	24,448	38,771
LAXATIVES, ANTACIDS, STOMACH PRODUCTS, ETC.	123,368	39,900	81,642
ANTACIDS	39,607	17,178	22,429
LAXATIVES	68,202	16,727	51,475
VITAMINS	214,509	171,224	39,750
ANESTHETICS	15,111	15,111	—
ANALGESICS			
EXTERNAL ANALGESICS	43,549	12,861	22,684
INTERNAL ANALGESICS	120,005	15,644	104,361
ANTIHISTAMINES	32,469	28,937	3,532
ANTISEPTICS, ETC.	48,532	19,368	29,164
REDUCING PREPARATIONS	16,054	15,609	445
DIETARY SUPPLEMENTS	2,200	2,048	152
HEMATINICS	32,548	31,881	667
HORMONE PREPARATIONS	103,532	103,532	—
HYPNOTICS AND SEDATIVES	57,830	51,433	6,397
NARCOTICS	18,092	15,979	2,113
SULFONAMIDES	23,691	23,458	233
TONICS AND ALTERATIVES	24,424	7,248	17,176
ALL OTHERS	279,010	257,319	21,619
TOTAL	**$1,584,697**	**$1,137,284**	**$402,852**

ETHICAL PREPARATIONS



PROPRIETARY PREPARATIONS



Complexation Incompatibilities

by Arnold D. Marcus, Ph.D.

ASSISTANT PROFESSOR OF PHARMACY, RUTGERS UNIVERSITY, COLLEGE OF PHARMACY, NEWARK 4, NEW JERSEY

Within a relatively short time a number of emulsifying, wetting, solubilizing and suspending agents, some of which differ widely in chemical structure but all of which fall into the general category of polyethers have found extensive and varied applications in pharmaceutical and cosmetic formulation. These agents, among which are included the Tweens, Myrjs, Pluronics, Carbowaxes, Polyethylene Glycol Esters and Methyl Cellulose possess a considerable number of advantages over other materials used for similar purposes.

Many of their advantages result directly from the non-ionic polyether structure. They are soluble or readily dispersible in water, tolerant to heavy metals and calcium, relatively unaffected by variations in pH, chemically inert and do not ordinarily elicit undesirable physiologic responses. Inherent, however, in the polyether structure are certain liabilities which render them incompatible with a variety of other organic compounds which also enjoy wide use in pharmaceuticals and cosmetics. These latter compounds include phenols,[1] carboxylic acids[2] and certain cyclic alcohols[3]. For the most part, these incompatibilities assume more than casual importance in that they differ in both character and consequence from ordinarily encountered incompatibilities. That is, they may be unaccompanied by such obvious signs as evolution of a gas, change in color or immediately recognizable precipitation. Of course, these "out-of-the-ordinary" incompatibilities are sometimes readily discernible as the results of such gross physical manifestations as flocculation of a suspension or the breaking of an emulsion but these, too, are often absent or masked. In still other instances, even the appearance of definite signs of incompatibility means little simply because the source and the nature of the incompatibility are either unknown or misunderstood.

These incompatibilities are then of an insidious character and are often difficult to detect and thus difficult to remedy. It is fortunate, therefore, that a substantial amount of work has appeared in the literature concerning the fundamental nature of the interactions between polyethers and other species. These reports, most of which have been the work of Higuchi and his co-workers of the University of Wisconsin,[2,4,5] leave little doubt of the possible magnitude of the problem. What is unfortunate is the apparent lack of application of these fundamental studies to specific problems. Even more unfortunate has been the absence of any general or survey publication explaining these interactions and typing together various examples which have occurred in practice with the more fundamental studies.

Although it cannot be said that there has been any flood of papers concerning empirically recognized incompatibilities of various polyethers, the incidence of such reports is reasonably high. One of the earliest of these reports indicated that phenol when added to solutions of Tween 20 yielded an oily white[1] precipitate. Perhaps the most dramatic of the incompatibilities of the polyethers was that obtained upon the addition of phenol to U.S.P. XIV Calamine Lotion. This lotion was prepared with polyethylene glycol 400 and polyethylene glycol 400 monostearate as dispersion stabilizers for the zinc oxide and calamine. The lotion apparently represented a distinct advance over previously official Calamine Lotions and gave every indication of being a superior product. Upon the addition of phenol, however, there was an almost immediate flocculation of the suspension and a complete loss of desirable cosmetic properties.

A more recent report[9] has shown that the softening of Carbowax based suppositories containing aspirin is a direct result of the interaction or complex formation between the aspirin and the polyether. What is perhaps more significant is the evidence that in addition to softening there is a concomitant delay in absorption of the aspirin. That is, the aspirin-Carbowax complex

is poorly absorbed if at all. In a series of investigations by the author relative to the compatibility of ointment bases containing Carbowaxes,[10] it was found that the incorporation of phenol, salicylic acid and tannic acid resulted in wholly unacceptable products. Other investigations have shown that the addition of phenols to aqueous solutions of the Pluronics results in precipitation of phenol-Pluronic complexes.[11] Emulsions of cottonseed or mineral oil in water prepared with Tweens in the author's laboratory have shown definite signs of cracking when mixed with phenol.[12] In a number of instances of incompatibility which may be of very substantial consequence, it has been shown that when both phenolic preservatives and polyethers are included in pharmaceuticals and cosmetics the phenols lose all or almost all of their antibacterial or antifungal activity.[13,14]

From the examples cited, it is plain that the possibility of incompatibility when the polyethers are used may be of real consequence. It must be also realized that the above is by no means a complete list and that numerous additional examples could be provided. Part of the difficulty encountered in dealing with these incompatibilities stems from the fact that the products of the reaction or interaction are not chemical species as usually encountered. They are, rather, loosely associated species which may vary widely in makeup even within the same reaction system. They may be best described, although admittedly somewhat loosely so, as complexes. No matter what their nature or the undesirable results of such complexation, it is of primary importance to understand, and thereby predict, such complexation. In such a manner it is possible to employ the polyethers to best advantage and, at the same time, minimize difficulties.

Although, as indicated previously, the polyethers vary widely in structure, the following representation may be used as somewhat of a general formula:

$$RO\text{-}CH_2\text{-}CH_2\text{-}(O\text{-}CH_2\text{-}CH_2)a\text{-}O\text{-}CH_2\text{-}CH_2\text{-}OR'$$

where R and R′ may be a wide number of functions including hydrogen. The molecular weights range from 300 to 10,000 depending upon their use. Although some of these compounds have little surface activity as such, those which are fatty acid esters or sorbitan ethers are highly surface active. In some instances the polyether is derived from propylene rather than ethylene glycol and others are derived from both ethylene and propylene glycol. Methyl Cellulose differs from this general structure, first, in that it is a carbohydrate and, secondly, because it achieves its status as a polyether by virtue of the numerous methoxyl groups in the molecule.

It was said previously that the mechanism responsible for many of the incompatibilities evidenced by the polyethers is closely related to the reason for their solubility in water. It would seem profitable, therefore, to examine the reason for this solubility. Every time solution occurs, there must be some sort of interaction between the solute and solvent. In the case of the polyethers this interaction or solvation (hydration) may be represented by:

$$\begin{matrix} HOH & & HOH & & HOH & HOH \\ R\text{-}O\text{-}CH_2\text{-}CH_2\text{-}(O\text{-}CH_2\text{-}CH_2)_n\text{-}O\text{-}CH_2\text{-}CH_2\text{-}OR \end{matrix}$$

where the water molecules form hydrogen bonds with the ether oxygens, thus causing solvation and dissolution. It is, of course, not necessary for each oxygen atom to be associated with a water molecule, but the general picture presented by the above is accurate. Similarly, it should not be imagined that the solvated polyether is a rigid structure with the water molecules remaining firmly bound. Instead, it should be assumed that the water molecules may "come and go" but that the net or statistical effect is that pictured.

While there is no *absolute* proof that the above is actually the mechanism responsible for the solubility of the polyethers, the proposed hydrogen bonding (dipole-dipole interaction) is supported by a good deal of evidence. It is well known that solutions of polyethers when heated will yield precipitates of the polyethers and that when the mixtures are cooled, the precipitate goes back into solution. Hydrogen bonding like all types of dipole-dipole interaction requires orientation of the interacting species. Since heat increases the speed with which molecules move, it follows that the subsequent disorientation does not permit sufficient solvent-solute interaction with resulting desolvation and precipitation. The practical application of these principles is nowhere better illustrated than in the recommended procedure for preparing methyl cellulose solutions.

How then does this tie in with the incompatibilities of polyethers? It will be remembered that these compounds often interact strongly with compounds which, like water, are also capable of forming hydrogen bonds, i.e., phenols, carboxylic acids and cyclic alcohols. According to present thinking it appears that these compounds replace the water responsible for solvation.[16] When, for example, a phenol is added to a solution of a polyether, the interaction between the phenol and the polyether is greater than between water molecules and the polyether. As a result, the product of the interaction—the phenol-polyether complex—is partially or wholly desolvated and, therefore, precipitates from solution. For the example given the complex may be considered to be:

$$\begin{matrix} & & & & & \\ R\text{-}O\text{-}CH_2\text{-}CH_2\text{-}(O\text{-}CH_2\text{-}CH)_n\text{-}OCH_2\text{-}CH_2\text{-}OR' \\ HO & & HO & & HO & HO \end{matrix}$$

with the same proviso that not every oxygen atom need be involved. Indeed, it is probably true that only alternate oxygens are bound to a phenol and the others associated with water molecules. It is quite probable that precisely the same type of interaction is responsible for the incompatibilities between carboxylic acids and polyethers.

Complex formation such as described above is easily demonstrated on a test tube scale. It must be noted, however, that the reactions are by no means simple or clear cut. In some instances, particularly with the lower molecular weight polyethers, the complex may

(*Continued on page 554*)

HIF . . .
Spotlight on Medical Progress

by George F. Smith PRESIDENT, JOHNSON & JOHNSON

One of the great strengths of the American free enterprise system is the ability to mobilize the talents and resources of private individuals and organizations to further the public welfare.

When such public spirit benefits the individuals or organizations involved, so much the better. In any event, this helps to explain the striking growth of industrial institutes and foundations over the last decade.

One industry group that has attracted wide interest because of the close interrelationship between its philanthropic aims and the benefits that accrue to its sponsors is the Health Information Foundation. A non-profit research, fact-finding and news-disseminating agency, the Foundation has the solid financial and personal support of more than 200 companies representing a highly important segment of the health field—manufacturers, wholesalers and retailers in the drug, chemical and allied industries.

When representatives of these companies first met in 1950 to set up the Foundation, they did so at a time when there was no dearth of organizations into which they might have channeled their public spirit. Individually as well as collectively, they already were contributing to education, medical research and to many institutions, foundations and philanthropic organizations working for better health.

Instead, they chose to strike out in a new and, up to then, neglected field. They recognized a public need for which there was no existing program. The need: more knowledge of how the benefits of modern medical care could be made universally available and used to best advantage by all Americans.

The Foundation proposed to do this by giving people the information they need to help themselves, and to show that the free, unfettered health "team" could make its best progress when not subjected to the crushing restrictions of socialized medicine.

To date, the record chalked up by the Foundation has been impressive. While far from claiming that it has been solely responsible for the tremendous strides made in medical care over the past six years, the Foundation has had a considerable effect in persuading a larger number of Americans to seek out and use the medical facilities that are available.

In design, the Foundation was and is unique. It is the only non-governmental agency actively engaged in sponsoring research as to how people use medical care, to what degree they are able to pay for it, and the number and availability of such health resources as hospitals, medical and nursing schools and other trained medical personnel.

Other industries, particularly those dealing with services and having a deep interest in the public welfare, are understandably intrigued with HIF. They recognize that such organizations are instrumental in working for the public good and are effectively taking steps in research toward goals which are best reached through the efforts of private initiative and enterprise rather than through the machinery of government.

HIF began its operations with the basic belief—as true now as it was then—that no nation in the world with a population as large and diverse as ours had a better health record. But it was a record that could be improved. There was substantial evidence that the American public was by no means making the fullest possible use of the available medical care.

In addition, the Foundation's sponsors knew that if the dramatic medical progress of the past half-century was to continue, there had to be a considerable improvement in the public's knowledge and use of health services. The problem was that despite a widespread lack of knowledge about what was already available, there was an insistent demand from the public for increasingly better medical care.

The threat of socialized medicine also confronted the Foundation's sponsors with some special difficulties. As George Bugbee, the Foundation's president, said last month (May) in his annual report:

"Americans invest large sums of private and public money in keeping well . . . and consider it imperative that their investments be spent wisely and in a non-partisan manner. But often in political drives for

LAMBERT PHOTO

great expenditures—variously called federalization of medical care, or socialized medicine as embodied in proposals for compulsory health insurance—the claims and counter-claims between governmental and voluntary solutions to health problems create confusion and obscure the facts. And a public without a clear understanding of the consequences of proposed solutions, but with an understandable wish for better medical care, can be led to act unwisely."

HIF's sponsors might have concentrated on legislative lobbying but they rejected this approach. Instead, they chose the long-range program of research coupled with information—of helping the American people achieve better health by giving them the information they need to help themselves.

From the start, the keynote of the Foundation's program was offense, not defense. The temptations to do otherwise, it must be admitted, were strong. "Public Opinions and Attitudes Toward Health Services," which was a survey conducted for the Foundation by the National Opinion Research Center of the University of Chicago, showed for example, that 56 per cent of the persons questioned in the survey were unable to name even one company engaged in the manufacture of drugs. And when it came to giving credit to the people or groups mainly responsible for the development of new drugs, only 11 per cent of the persons sampled mentioned drug companies, pharmaceutical houses, or chemical firms. Forty per cent vaguely credited "scientists"—affiliation unknown—and 23 per cent gave credit to anonymous "doctors."

Rather than concentrate its fire on these specific problems of the drug industry, the Foundation chose to expand its horizons. To quote from the remarks I made on May 25, when I took over as chairman of the Foundation's Board of Directors, in restating the early motivations of the organizers:

"We resolved . . . that we would not waste time in patting our respective backs for the high health standards of the United States. Instead, we determined to search out those population segments and those areas which did not enjoy the same health standards—to try to identify the reasons for that lack, and then to strive for corrective measures.

"We resolved . . . that we would not spend our time calling attention to the millions who had voluntary health insurance. Instead, we would concentrate on a program to extend voluntary insurance to those who did not have that financial protection, and at the same time to work for more comprehensive health insurance."

In the broad field of voluntary insurance coverage, I believe there are facts enough to measure the exciting progress that has been made. At the end of 1949, 66 million Americans were covered by voluntary hospital insurance, and 41 million had some form of surgical insurance. By December 31, 1955, the number of hospital-insured had risen to 105 million—a gain of almost 60 per cent in six years—and the number with surgical coverage increased more than 100 per cent to 90 million.

It is reasonable, I believe, to credit the Foundation with a significant part in these developments. To

(Continued on page 568)

COURTESY HELENA RUBINSTEIN

Hair and Skin Conditioners

by Harry Hilfer

It would be difficult to give an exact definition of the term "conditioner" in the strict cosmetic sense. My own impression is that the term embraces all agencies that affect those superficial qualities which improve the appearance and the texture of the skin and hair. In the broadest sense, therefore, physiological agents should be included as well as the purely mechanical aids and indeed it would sometimes be difficult to draw a fine line between the two. Since the physiological agents are more properly within the realm of the dermatologist, there will be no attempt made to discuss these, but rather to limit the discussion to several of the purely cosmetic materials whose activity is thought of as being completely superficial as distinguished from the physiological. For example, since the current theory regarding skin care rests on the fact among others that an increase in water in the skin tissues have a direct bearing on better or younger skin—preparations which are capable of introducing water to the tissues may be regarded as conditioners. Their activity, however, must also be dependent on their capability of introducing water into the actual skin cellular layers, and, therefore, is no longer superficial and will, therefore, be regarded as physiological.

The hair, particularly, has been the medium for which most claims of conditioning have been made. In our modern day living, the hair must be kept clean and well groomed, and though it is not thought of as a woman's crowning glory any longer, she probably spends more time on its care than ever before. It is subjected to a large number of deleterious factors, of which the most important is an increasing amount of soil because of the increased amount in the atmosphere due to our highly industrialized way of life. In addition, there are other minor factors—such as the harshness of texture which may sometimes be due to excessive permanent waving and the insoluble soap films which cause the hair to appear dull particularly in hard water areas. A hair conditioner may be, therefore, thought of as an agent which would help alleviate harshness of texture and to help to soften the texture; to remove the dull films and to increase the hair's natural sheen; to make the hair more manageable, particularly after shampooing.

The manageability of the hair may be controlled by a number of factors. If the hair on washing is degreased to an excessive extent, it is difficult to control because there is no binder present on the hair shaft's extension to cause the individual hairs to cling to each

other. In addition, there appears to be a static charge produced which actually acts as a repellant for the individual strands. This may be overcome by the addition of some oil but most women object to such treatment of the hair—preferring it to be non oily. The ideal method would seem to be to incorporate some substances in the shampoo which would cling to the hair after the final rinsing and so keep the static charge normally induced from exerting any effect. Such substances, conceivably, would also materially decrease the harshness of the hair's texture by coating it, if the agency itself has the necessary unctuous properties. Claims have been made for lanolin and lanolin derivatives as agents which would possess this property and this is undoubtedly true if a sufficient quantity would cling to the hair. It would be difficult to make an absolute statement agreeing with or denying the possibility that a residual amount of lanolin remains after shampooing in an amount which would have some effect. It is conceivable that this would be possible in some types of shampoo.

There are other substances which seem to have a more positive substantive effect without materially affecting the foaming and cleansing properties of the shampoo. Fatty acid amides particularly seem to impart a definite softening effect to the hair. Proof, from a strictly scientific standpoint is difficult to obtain, but there is sufficient evidence from beauty shop operators experienced in treating hair to regard functional ability as more than a myth. At any rate there are large quantities being used for this purpose.

Another method of conditioning the hair is by the use of an auxiliary product whose sole function is to impart these effects. They are made part of a hair rinse which is used after a permanent wave or after a shampoo. The rinses have a dual function; to remove any dulling film from the hair and to enhance the hair's softness. Most of the successful rinses on the market depend on quaternary ammonium salts with an acid pH for their effectiveness. The acid pH of the preparation would automatically cause any calcium soaps (usually the primary component of the dulling film) to decompose. The quaternary compounds themselves are markedly substantive to proteins and seem to form a film around the shaft making the hair softer to the touch and effectively reducing its harsh feel. This type of preparation is now being used almost universally to impart these functions. The mechanism by which it works is not completely understood, but there is no doubt that it forms a loose chemical union with the hair proteins. Its substantivity seems to be dependent in an inverse ratio with its solubility in water, compounds of lower solubility, being more substantive than more soluble derivatives.

The most commonly used of the quaternary compounds utilizes in its structure the straight chain eighteen carbon radical as represented by the stearyl

(*Continued on page 567*)

COURTESY FRAGRANCE FOUNDATION

Biological Activity

CHEMICAL STRUCTURE

*by Erwin Di Cyan, Ph.D.**
DIRECTOR, DI CYAN & BROWN, CONSULTING CHEMISTS, NEW YORK

A popular platitude maintains that women are unpredictable. That banality may, or may not be true. Ethel, a woman may be unpredictable—but so is Ethyl, a radical. Ethyl (C_2H_5) combined with a hydroxyl (OH) can give one a hangover (alcohol). Two ethyls combined with oxygen (O) can put one under anesthesia (ether). But *a*-(1-methylamino-ethyl) benzyl alcohol, or ephedrine can give one intense stimulation and excitement.

Other radicals are equally unpredictable. If one's liver cannot accept methyl (CH_3) radicals there is serious trouble. Methionine and choline have their desirable effect in liver metabolism because they are able to donate methyl radicals to the symphony that the biochemical instruments play in the hepatic orchestra. But two methyls connected by a carbon-oxygen bridge, (CO)—like this, CH_3-CO-CH_3—can, if inhaled, raise havoc with the liver by converting into fat or scar tissue that is useless, the healthy liver tissue that is active in the detoxification. And in addition to that, CH_3-CO-CH_3 (acetone) can take one's nail polish off.

There are hundreds of examples such as those just cited. The early belief that the physiologic action of a drug is a function of its chemical structure was a comforting if complacent thought. It made a neat and secure pattern. Yet it was fortunate that subsequent developments prevented the serious acceptance of that premise for too long a time. Ehrlich's receptor theory at first reduced, and then destroyed the complacency of the belief that biological or physiological action is simply a function of chemical structure. Today the subject still has huge unexplored areas and the areas of our ignorance therein are greater than areas of our knowledge. For that reason, and related reasons, a greater stress will be laid on the limitation of the relationship between biological activity and chemical structure, than upon its accomplishment. We shall discuss the whole subject superficially perforce, in order to view the overall mechanisms involved in biological action.

Receptor Theory

The receptor theory taught that the action of a drug is the result of the effect of a drug on certain areas or patches of tissues or cells. These tissue components combine with or interact with the drug and give rise to the action of a drug as we know it. Later, the experimentally verified notion was advanced that enzymes in the tissues influence the action of a drug, for enzymes may play the role of the receptor—and in fact, an enzyme may be the true receptor. The enzyme theory has explained many phenomena in connection with drug action, although in other instances, an explanation of drug action on the enzymological basis is merely a postulated explanation. The enzymological explanation is a potent argument against the unilateral acceptance of chemical structure as an ex-

COURTESY ELI LILLY AND COMPANY

planation of biological activity.

Other Factors

The effect of a drug is also modified by its concentration; an increased concentration does not always mean more intense activity. Morphine or the barbiturates are cases in point. A greater concentration may have an inhibitory effect whereas a lesser concentration may be stimulating—or the reverse may occur.

Other physical factors also markedly influence the action of a drug. Though there is no sovereign explanation which accounts for pharmacological activity of chemical substances many physical factors do explain pharmacological activity in a measure greater than is possible by the formulation of rules concerned with chemical structure alone.

For example, the Ferguson principle of structural non-specificity holds that the action of many drugs, particularly hypnotics and general anesthetics is not related to the presence of, or lack of a particular chemical group, as the action depends on the physical properties of the drug. Though one can think of several exceptions, that principle does confirm structural nonspecificity as an operative principle in a great number of drugs. The fact that the addition of a particular chemical group, the methyl group for example, can reverse the kind of activity of a substance is proof, rather than disproof of the Ferguson principle.

Cortical Steroids

Among steroid hormones, the adrenocortical hormones as cortisone, etc., are quite sensitive to alteration of effect, by a slight change in their structure. But it does not mean that a rule can be established that will hold for most cases. For example, the introduction of a halogen, specifically bromine, into the ring of a rheumatic steroid, hydrocortisone, results in a total loss of antirheumatic activity. Yet it is grotesque that the introduction of another halogen atom, fluorine, enhances the antirheumatic activity of the substance.

Predictability of Effect

Predictability of biological or pharmacological activity of chemical substances has been attempted, and in many instances has been successful, by studying the molecular forces latent in a chemical substance, its solubility, ionization, and its molecular dimensions, particularly its molecular shape. The yardstick for the study of molecular dimension is the Angstrom unit ($\mathring{A}$). The distance between bonds or bond length has been demonstrated to be predictable in some instances of biologic activity. That method of procedure is not dependable (as in fact, no one single method is) for bond instances can change due to the rotation of a bond when the substance is in solution. Measurement of bond distances can be likened to the measure of the

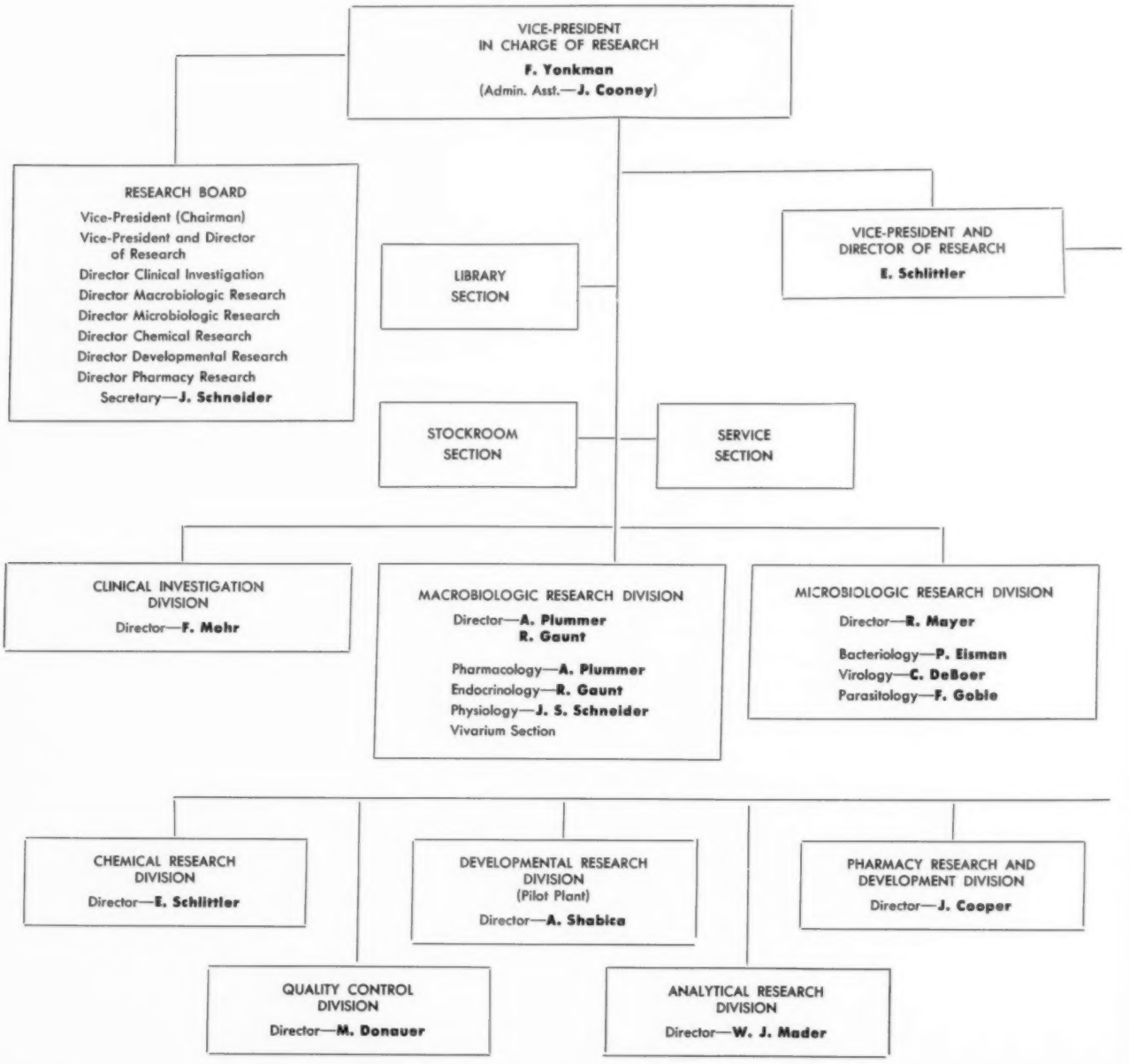
(Continued on page 564)

Pharmaceutical Research Organization

by Joseph Kalish, Ph.D.

As the material is released to us by the respective companies, we hope to publish a series of organization charts of the research departments of pharmaceutical and cosmetic companies. Where possible, names of key personnel and descriptions of special functions will be given; this is being done with the hope that this exchange of information will result in an over-all increase in research efficiency. Much that large organizations now do can be modified to good purpose for application to small-scale operations. This is true even where the technical staff is required to combine production and control functions with research.

RESEARCH DEPARTMENT CIBA PHARMACEUTICAL PRODUCTS, INC.



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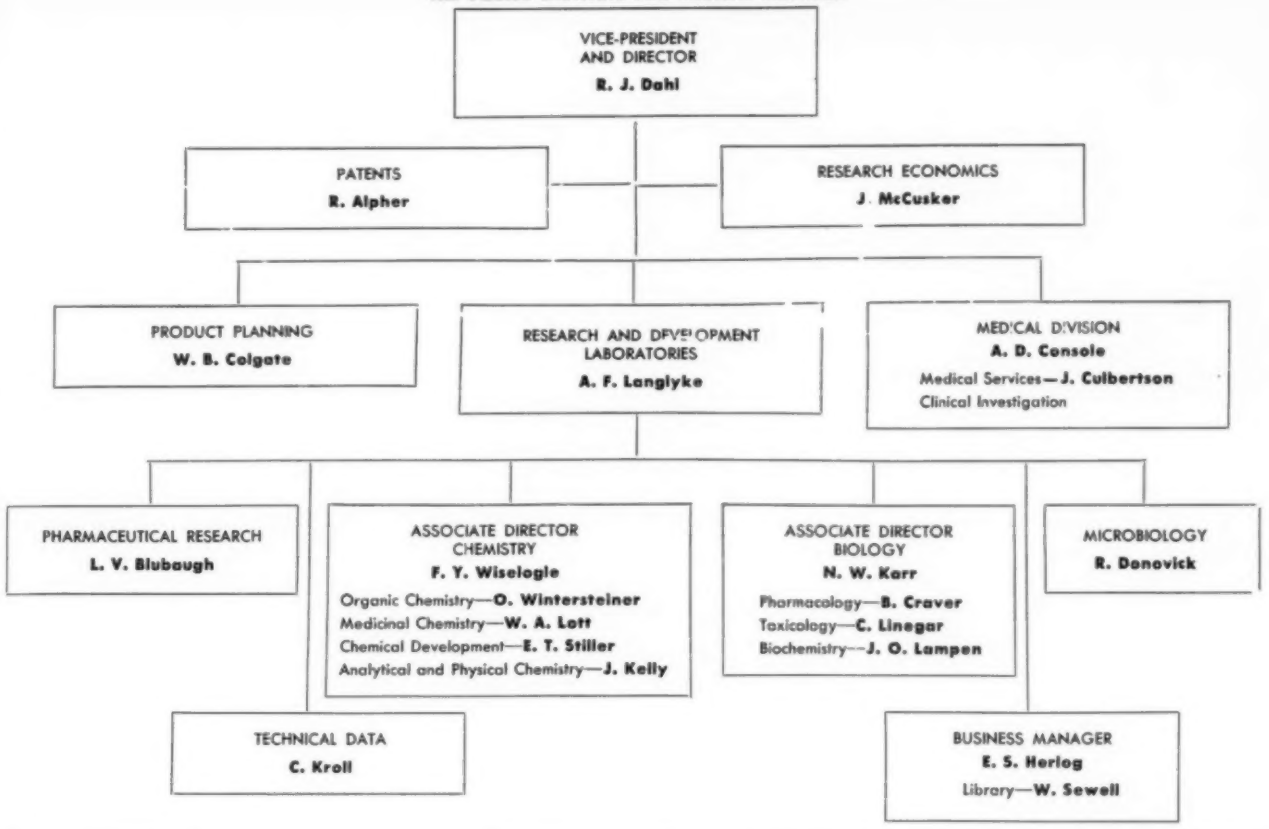

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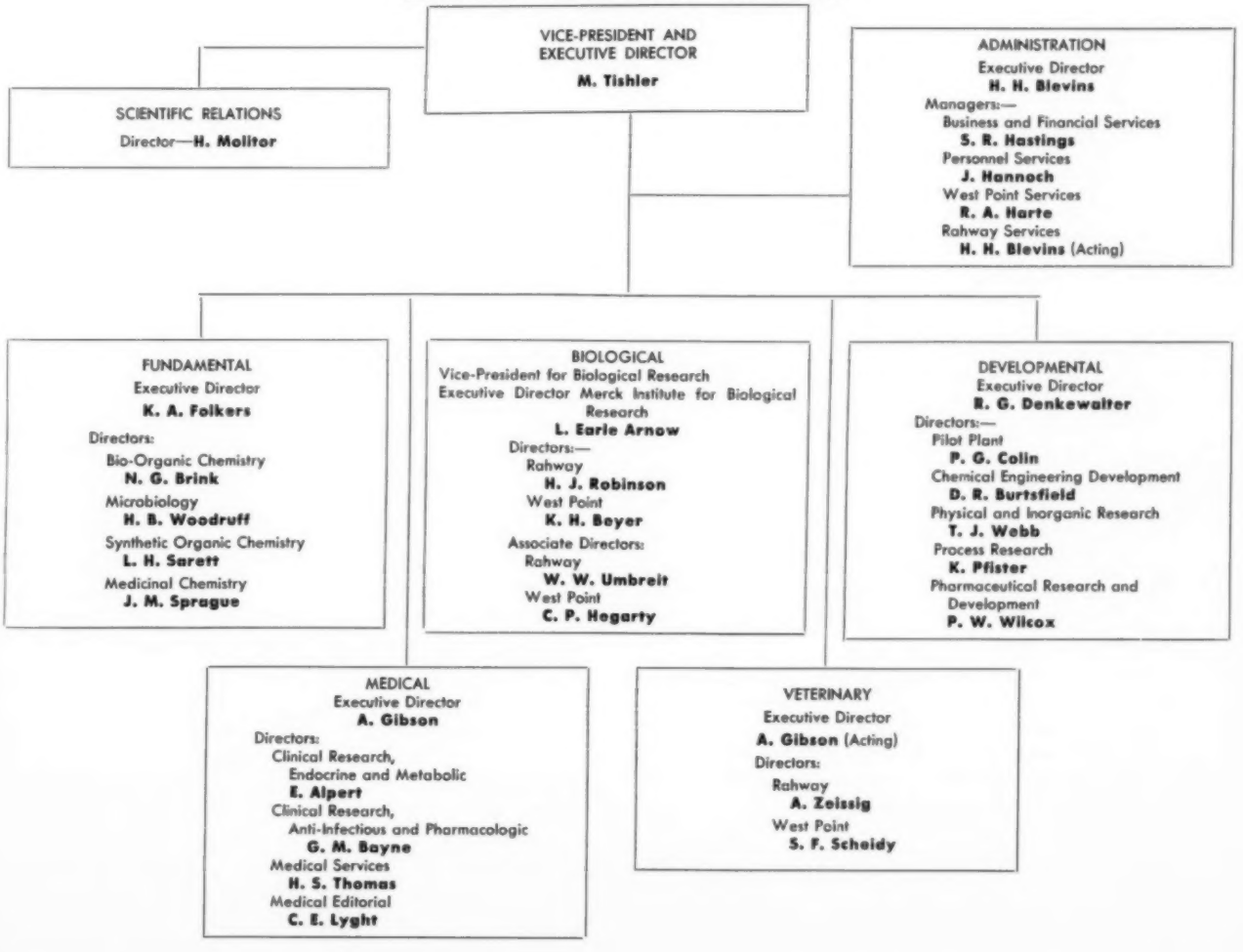
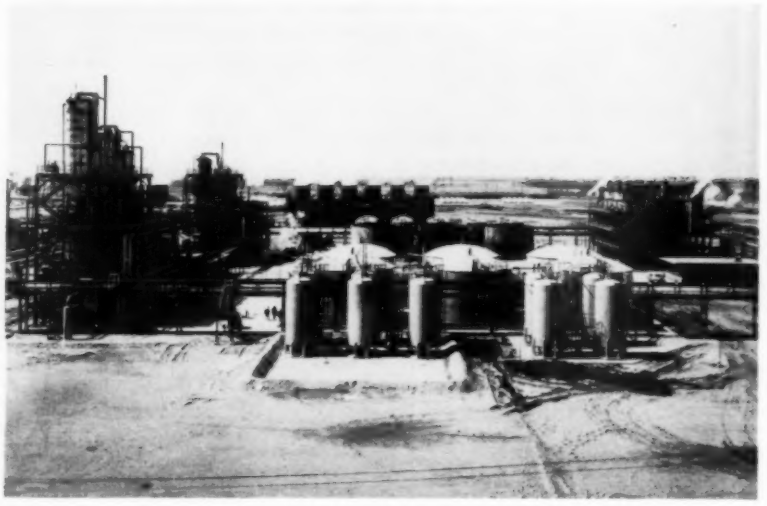


FIFTY YEARS of Tax-Free Industrial Alcohol

by L. A. Keane,
VICE-PRESIDENT U. S. INDUSTRIAL CHEMICALS CO.,
A DIVISION OF NATIONAL DISTILLERS PRODUCTS CORP.



By an act of Congress in June, 1906, the United States government officially freed industrial alcohol from the restrictions of the beverage alcohol tax. The tremendous growth of the alcohol industry (and a good many others) dates from that single piece of legislation.

With the fiftieth anniversary of the act being celebrated this year, it is apparent that one of the chief beneficiaries of the Denatured Alcohol Act of 1906 has been the drug and cosmetic industry. This may easily be illustrated: If the Act were not in effect today, every drug and cosmetic manufacturer in the country would be paying more than twenty dollars a gallon for an essential raw material whose present price is less than fifty cents a gallon.

I termed alcohol an "essential raw material." That's an understatement—alcohol has been called the world's most widely used solvent next to water. It is used today for drug and cosmetic applications that are literally hundreds of years old, yet each year finds alcohol playing a vital role in the very newest products to reach the market. Modern aerosols, for example, demand a versatile solvent that will retain its properties under a wide variety of physical and chemical conditions. Alcohol fills the bill. Stick deodorants, essentially alcohol soap gels, present alcohol in solid form to meet the current demand for easier-to-apply cosmetics.

New uses for alcohol helped swell consumption of industrial alcohol by the cosmetic industry to more than seven million wine gallons last year. Pharmaceuticals, which employ alcohol as a carrier, solvent, and important extracting agent, accounted for another eight million gallons.

But alcohol was not always the useful, dependably pure product we know today. For thousands of years it was simply the unknown ingredient that made grape juice worth fermenting. By the Eleventh Century a few hardy souls had learned how to isolate this ingredient, which they called, probably because it was first used as a pharmaceutical, "aqua vitae." The name alcohol—from the Arabic "alkoh'l," a widely used cosmetic powder obtained through distillation—was originally used for any number of distillation products, and gradually came to mean highly distilled ethyl alcohol.

Alcohol Becomes Industrially Important

As the Age of Chemistry began to dawn, toward the middle of the Nineteenth Century, men of science saw in alcohol's remarkably versatile properties the key that would unlock a whole host of chemical reactions and processes. But there was one big drawback to the many industrial applications that suggested themselves: Alcohol's universal popularity as a balm for the troubled and a tonic for the weary made it a prime object for government regulation. Not only were high alcohol taxes a first class source of revenue; they also served as an economic curb on overindulgence. Most governments, our own included, were not particularly interested in applying the heavy alcohol tax to industry, but there seemed no practical way to insure that alcohol intended for industrial use wouldn't eventually end up, tax-free, in somebody's glass.

Chemists in England first came up with an answer to the problem. They found that the addition of small quantities of wood naphtha to alcohol made it unfit

for human consumption. Moreover, these denaturants, as they were called, could not easily or economically be separated from the alcohol. This research led in 1855 to the lifting of the tax on industrial alcohol in England. Other countries followed Britain's example, and by 1893 most European countries had made provision for tax-free denatured alcohol.

U. S. Passes Denaturing Act

In America, Congress was slower to act. Although a joint committee had reported in 1897 that "there is scarcely a manufacturer in the country who does not use alcohol in the production of his goods . . ." no positive action was taken until 1906.

Industry's response to the Denaturing Act was immediate. In October, 1906, a group of four distilling companies incorporated under the name U. S. Industrial Alcohol Company,* and prepared to marshal their manufacturing and distribution facilities for the expected demand for industrial alcohol. The demand was immediate. Alcohol production zoomed from under two million gallons in 1906 to almost ten and a half million gallons in 1914. A year later, U. S. I.'s production alone topped this figure, as the demands of the war in Europe were felt. The war, and the years immediately following, also brought demand for a flood of alcohol-derived chemicals—ethyl and amyl acetates, diethyl ether and ethylene—and precipitated many alcohol producers full tilt into the chemical business.

By the beginning of the second World War, industrial alcohol consumption in this country had reached an astronomical 134 million gallons, and production has continued to rise.

Government-Industry Cooperation

Aside from its tangible results, another aspect of the Denaturing Act deserves mention: For the past fifty years it has served as an outstanding example of industry and government cooperation. The legislation itself was a joint effort of industry and government and the two have worked closely together ever since, both in enforcing the act's provisions and in developing new formulas for denatured alcohol to suit particular processing needs that have arisen. This kind of cooperation is, in a way, to be expected. Industrial alcohol producers and consumers have been glad to submit to minimal government supervision in exchange for freedom to develop the full potentials of alcohol in industry.

*U.S.I. (the initials now stand for U. S. Industrial Chemicals Co., Division of National Distillers Products Corp. is still a major producer of alcohol, and also celebrates its 50th anniversary this year.

Actually, the regulations governing the use of industrial alcohol are a lot simpler than is generally believed. For regulatory purposes, alcohol is divided into four classifications:

Tax Paid Alcohol is pure ethyl alcohol on which the federal government levies a tax. However, if the tax paid alcohol is used in the manufacture of certain medicines, food products, flavors or flavoring extracts which are unfit for beverage purposes, a drawback o most of the tax paid may be obtained.

Tax Free Alcohol is pure ethyl alcohol withdrawn under permit from the federal government for use by hospitals, universities, government agencies, or laboratories engaged in scientific research.

Specially Denatured Alcohol is ethyl alcohol so denatured as to allow its use in a greater number of specialized industrial applications than is possible with completely denatured alcohol. It is sold free of federal tax, but a permit is required and regulations govern storage and record keeping.

Completely Denatured Alcohol and proprietary solvents, such as U. S. I.'s Solox®, are ethyl alcohol formulations which have been rendered entirely unfit for beverage use by the addition of denaturants prescribed by law. They are not subject to federal tax and may be purchased and used without federal permit. These formulations are subject to nominal regulations depending on the quantity purchased, type of package, and records to be kept.

No Serious Shortages Seen

Looking ahead, the alcohol picture is good. Since the war there has been a swing toward synthetic production. About 70 per cent of today's alcohol is syn-

(Continued on page 567)

Axillary Perspiration*

by W. G. Fredell and R. R. Read

LAMBERT-HUDNUT DIVISION OF WARNER-LAMBERT PHARMACEUTICAL CO.

COURTESY RICHARD HUDNUT

The title of this paper indicates the restricted area under consideration. The amount of perspiration in the axillae (I) varies greatly and may or may not have an odor (II) which is detectable within a few minutes after washing, or, requiring a longer period of time to become obvious. Bacterial counts (III) obtained from the axilla vary widely and do not correlate with high odors. That which follows is an elaboration of these points together with information on a testing method (IV) for deodorization and the results obtained from some agents.

Axillary Perspiration I

Where, when and how much does a person perspire in the axilla? In general, the active perspiring area in the axilla is delineated by the hairy portion. Using the Minor[1] technique of painting the shaved axillary area with dilute iodine solution and then dry dusting with starch, it was possible to define the perspiring area. The prepared subject in a heated room perspired on the forehead, arms, and legs before any perspiration appeared in the axilla and, in those areas, it did not appear in the same time interval in different subjects. To determine amounts of perspiration in the axilla, two methods were used. One method was carried out under controlled conditions of temperature, humidity and exercise and the other without these controls.

Method—Controlled Conditions

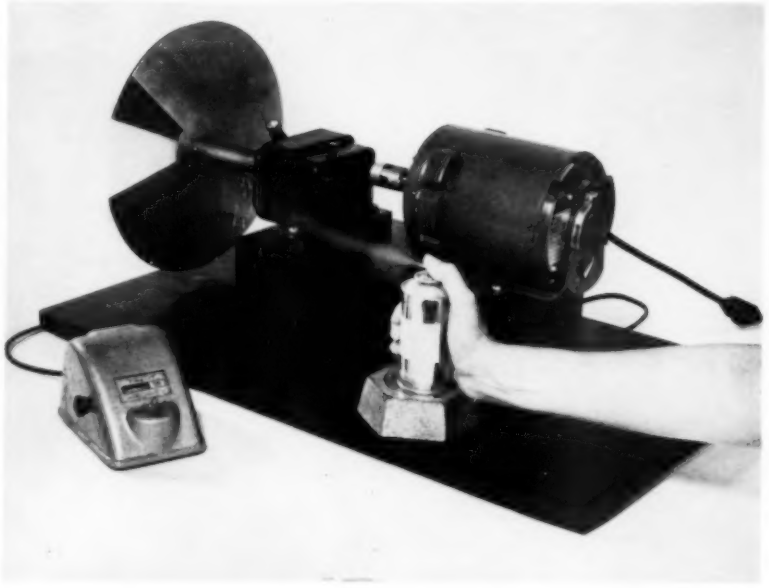
Men with shirts removed and in sleeveless undershirts, and women with uniforms dropped from the shoulders so as to expose the axillary areas were subjects. The subject would enter a room controlled at 85° F and 60 per cent relative humidity and rest in a chair for 15 minutes. Perspiration would always appear on the forehead, forearm and legs but not in the axillae. The subject, after having the axilla dried,

(*Continued on page 534*)

*From proceedings of the Scientific Section of the Toilet Goods Association, No. 25, May, 1956.

PHARMACEUTICAL AEROSOLS from Idea to Product*

by Morris J. Root G. BARR & COMPANY



Before transferring a pharmaceutical product from the original package, it is necessary to determine whether utilizing the aerosol package will achieve any of the following:

(1) ease of application
(2) prevention of contamination of product
(3) elimination of air in the product
(4) uniform application to skin
(5) formation of a fine mist for inhalation therapy
(6) speed of application
(7) application without manual contact

The aerosol pharmaceutical idea is sound if any of the above are important factors.

Formulation

A successful pharmaceutical aerosol product should be formulated for aerosol dispensing rather than adapted to it. Formulation changes are nearly always necessary when going from conventional packaging to aerosol packaging. In formulating the product we have our choice of one of four systems.

(a) The three-phase system. In this aerosol system there is a layer of propellent, a layer of concentrate, and a gas phase, hence the name three-phase.

(b) The two-phase system. By far the largest number of products now on the market are of the so-called two-phase system; namely, one liquid phase and one gas phase. The liquid phase consists of the propellent and formulation, and the gas phase consists mostly of propellent and some volatile solvents. Since water is not miscible with the propellent, such systems can have only a very small amount of water present.

(c) The emulsion system. Shaving creams are propellent-in-water emulsions which are dispensed as foam. Recent developments whereby the propellent is emulsified into an aqueous system by the use of anionic and non-ionic detergents permit, for the first time, the dispensing of aqueous products as a spray. Although it is necessary in such systems to use only from two to five per cent of propellent, it is necessary to use at least one and a half to two times that amount of emulsifier. These emulsions can be almost transparent in appearance. It now becomes possible to make water-based sprays by emulsifying the propellent with one or more surfactants. These water-based sprays open up many new possibilities for aerosol pharmaceuticals.

(d) The dispersion system. Where the active

*Delivered September 11 at the 18th annual forum of the Packaging Institute

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material is not soluble in the propellent system, it can be dispersed, and we have what is called a powder spray aerosol. Such powder sprays are useful for application of powders to the feet or hands.

Selection of Amount and Type of Propellent

Selection of the propellent depends on the container which is to be used, the formulation, and the foam or spray characteristics desired. With plastic coated glass containers, a maximum pressure of 25 lbs./sq. in. gauge is recommended. The following chart shows the pressures suitable for various types of aerosol containers.

Maximum P.S.I.G. 70 F.		I.C.C. Regulations
90	2 P Crown Can soaps and foodstuffs only	73.302 (a) (5)
70	2 P Crown Can (with safety valve) propellents only	73.306 (c) (1)
	Non-flammable, non-poisonous insecticides	Special Permit 1195
60	2 P Crown Can flammable, non-poisonous products	73.306 (d) (2)
40	Metal containers, blackplate, tinplate and aluminum	75.302 (a) (3)
25	Plastic coated glass	Manufacturers' Recommendations
	Plastic	
15	Uncoated Glass	Manufacturers' Recommendations

With aqueous products the type 11 propellents (Genetron 11, Freon 11) which hydrolyze, cannot be used. Spray characteristics include the amount of spray, particle size of spray, and temperature of spray. These factors are all influenced by the type and amount of propellent. Spray characteristics can be determined by means of spray patterns.

Compatibility of Formula and Propellent

Having selected the formulation and the type and amount of propellent, the product should be shelf-aged in glass to determine the stability of the completed formulation.

Selection of Container and Valve

Selection of a container for aerosols is no different from such selection for conventional packaging. There are four things to consider in selecting the container, (a) material of construction, (b) size, (c) cost of container and (d) aesthetics. Aerosol containers are available in metal, glass and plastic. The metal containers include black iron, tinplate and aluminum. These can be either coated or uncoated. The tinplate can be procured in various weights from a quarter pound tin per base box to one and a quarter pounds tin per base box. Glass containers are available, either plastic coated or uncoated, up to four ounces in size. Plastic containers made of Nylon, melamine formaldehyde and phenol formaldehyde are available in sizes up to two-ounce capacity. Experimental work for the purpose of using other plastics for aerosol containers is continuing. The choice of the material of construction for the container will, of course, be influenced by the nature of the product.

The size desired has an important bearing on the selection of the container. Only the metal containers are available in sizes over four ounces. Plastics and glass are restricted to four ounces and under, while metal containers can be used for amounts up to seventeen ounces.

Cost of the container is an important consideration, and in general is lowest for the tinplate and black iron container. The following chart gives the cost in cents per avoirdupois ounce fill of the various containers available.

	CENTS / OZ. AV.
METAL CONTAINERS	
Tin Plate	
16 oz.	.0030
14 oz.	.0035
12 oz.	.0036
6 oz.	.0053
4 oz.	.0071
Aluminum	
2 oz.	.0350
BOTTLES, PLASTIC COATED	
4 oz.	.0245
2 oz.	.0360
10 cc.	.1800
PLASTIC CONTAINERS	
2 oz. Nylon	.0350
2 oz. Melamine Formaldehyde	.0600
2 oz. Phenol Formaldehyde	.0300

(Continued on page 571)

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10 cc.	.1800
PLASTIC CONTAINERS	
2 oz. Nylon	.0350
2 oz. Melamine Formaldehyde	.0600
2 oz. Phenol Formaldehyde	.0300

(Continued on page 571)

IS THIS THE WORLD'S LARGEST DOME-TOP AEROSOL FAMILY?

Only Continental offers 6 dome-top aerosols ...sized to suit your every selling need

Here's a truly complete line of giant economy-size, medium-size and small-size containers—tailored to sell your product in its most convenient and appealing form. And because they let you fill all your container needs in one order, Continental dome-tops will shave your shipping and handling costs, too.

Let us start you off with up-to-the-minute deliveries of all the dome-top cans you need, lithographed to perfection by Continental craftsmen. Personalized engineering and research is available, plus contacts with valve suppliers and commercial fillers, if you wish. For the tops in dome-tops, and tailor-made service to match, call Continental soon.

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NEW COLOR-SPRAY SIDE-STRIPING GIVES ALL-AROUND APPEAL

Now your aerosol package can look beautiful from any angle, with Continental's new color-striped side-seam. Another Continental "first", this special striping is sprayed on to match the background color of your lithographed design. Gone is that distracting gleam of solder, and the difficult job of paper labeling. Now available on Continental's 6-oz. dome-tops, color-spray side striping will be extended to other sizes in the near future.

TAILOR-MADE PACKAGE SERVICE

Distribution Strategy

by Frazer V. Sinclair

COURTESY CARL BYOIR AND ASSOCIATES

Distribution is a tricky word because it means so many different things to so many different people. Basically, to most men in selling or advertising, distribution means the structure of the retail organization through which any product is sold.

Today the problem of any company, large or small, firmly established or creeping upward, is certainly the problem of how to get the most out of distribution.

It is shocking how many manufacturers believe that the simple expenditure of a large sum of money in consumer advertising will carry the full burden of their marketing efforts. Many of these people prepare a lavish brochure of their advertising for their salesmen to carry, but there may be no basic conception at the home office of how many things can go wrong or may be lacking at the point of sale to justify this advertising expenditure.

It is startling to any one who has had the opportunity to analyze the distribution of many companies, to observe what shocking discrepancies there are in the effective working of retail accounts in different cities.

It is the experience of this writer, after studying in detail the distribution of a substantial number of successful companies, that the vast majority of the nationally distributed products show a very ragged, uneven sales figure throughout the distribution.

Even where national advertising has been proportioned over the country in different communities on a fair basis over a number of years, there will be, for most companies, a variation of as much as 100 per cent in the sale of their product in different cities of approximately the same size, or in different retail stores approximately equal.

What are the factors that are needed to get the most out of distribution? Obviously, the first basic factor is that the distribution must be sufficiently adequate to make the product reasonably available to any consumer who may wish to examine or purchase it.

Availability is another tricky word. Obviously, availability for a utility product, such as tooth paste, will vary enormously from the distribution needed for a fashion or shopping product, such as an imported perfume. There is a definite distance which people will walk to procure any specific commodity. They may not, and in fact, they should not, need to walk more than a block to get a tooth paste. For a fashion product in the higher price range the distance becomes substantial, and in fact, part of the psychological pleasure in possession of an article of this nature means that a certain inconvenience or special shopping effort has been made to obtain it.

At any rate, the adequate distribution which is a basic, essential foundation for good selling is the proper number of stores properly located for any specific product which gives proper availability for that kind of a product.

Given the physical factor of product availability to the consumer, the problem of marketing then becomes a struggle to get the most out of this distribution. One of the first needs to accomplish this purpose and one of the primary objects to good selling is to procure for this product within the retail store, *visibility*.

Visibility can mean a lot of things in addition to the obvious meaning which any one in selling immediately senses. For instance, quite a few surveys have shown that bad eyesight is quite a serious problem in brand identification with a substantial number of shoppers. These are people with eye defects, such as farsightedness or nearsightedness, who still have not found it essential to wear glasses regularly in ordinary everyday activities. Visibility is obviously the struggle by the producer's sales force to get the preferred spot on the preferred shelf in retail stores.

Tied in, but somewhat similar to visibility is the third factor of getting the most out of distribution,

(*Continued on page 480*)

OPPORTUNITY

UNLIMITED···
IN AEROSOLS!

Here's how you can get into this fast growing field!

Want your share of the $250,000,000 aerosol market? Looking for the best way to get in on skyrocketing aerosol sales . . . up 32% in 1955 over '54 . . . up to 240,000,000 units with no end in sight?*

Then follow the course of so many successful aerosol marketers—take advantage of the special services that General Chemical puts at your disposal. Here's how we can help you enter the field . . . quickly and *economically:*

Expert Technical Service—General Chemical has one of the most complete aerosol development laboratories in the country. Its staff and facilities are at your service—without cost or obligation—to help you develop the right propellants and formulations for your products.

Market Information—Helpful facts and figures on the aerosol market—including data on many promising new types of aerosols—are available to present and potential aerosol marketers and their advertising agencies. You will find this information invaluable in surveying the field and planning your marketing program. Special presentations arranged on request.

Technical Data—The results of our continuing research into new and better aerosols are published regularly in special bulletins and reports. Ask to be put on the mailing list for this advanced information. Also available to newcomers in the aerosol field are data on sources of aerosol containers, valves, contract filling, etc.

Field Assistance: General's aerosol experts are always available to help solve problems involving the storage and handling of propellants in your plant and filling line.

The Right Propellants—"Genetron" propellants are the first choice of many leading fillers and marketers for formulating household, drug, cosmetic, agricultural, industrial and other types of aerosol products. They provide the right propellant for every aerosol need, every pressure and compatibility requirement, every type of container.

Don't delay. Any product that can be sprayed, brushed on, dusted or daubed may be a candidate for profitable packaging in aerosol form. Write today if you would like us to work with you to turn your aerosol ideas into profitable reality.

Send for free fact-packed technical manual and market data book . . . "How To Push Up Profits With Aerosols."

Write to
"Genetron" Department

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

*Aerosol Pressure Products Survey, Chemical Specialties Manufacturers Association

genetron® AEROSOL PROPELLANTS

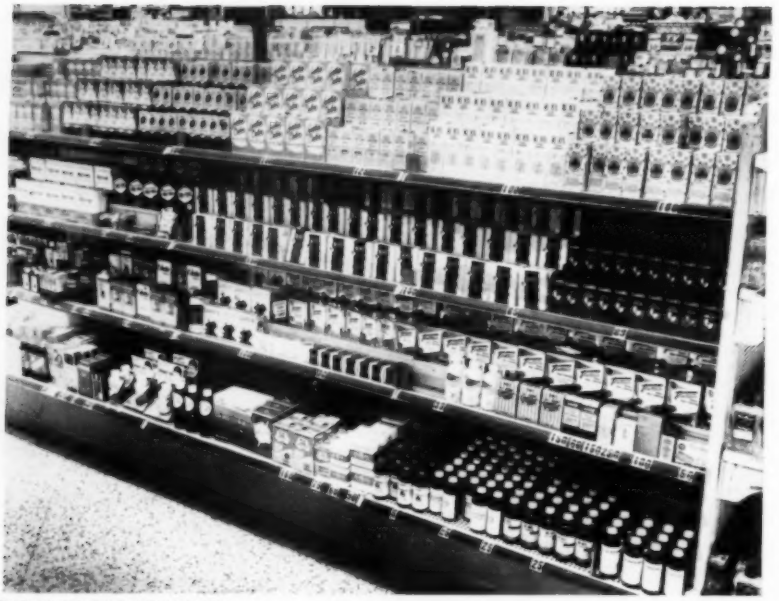
. . . The Right Propellant for Every Aerosol Need!

Your short cut to aerosols . . .

CAPABLE CONTRACT FILLERS

One of the major advantages of marketing or testing the potential of your product in aerosol form is that it need not involve a large initial cash outlay. Entry into this profitable field can be made economically and without investment in plant or special equipment.

This is possible because there are many highly capable "Contract Fillers" throughout the country who will put up your product in aerosol form in quantities as low as a few thousand. These Fillers offer a wealth of accumulated experience invaluable to the newcomer to aerosol marketing. For a list of Aerosol Contract Fillers, write to General Chemical.



COURTESY CARL BYOIR AND ASSOCI TES

that is, *convenience* for the customer. This means, where the product is located within the store, what shelf it's placed on in that location, and what position it takes on that shelf. Here again are many variables which change from store to store and from product to product. Nevertheless, there are certainly fundamental factors here which countless retail tests have made familiar to the accomplished merchant. For instance, it's long been proved what an enormous variation in sales can take place between products placed on shelves below knee level or above eye level, as compared to that ideal shelf location at approximately eye level. Among the great battles of the supermarket are the struggles for store position near the checkout counter and in other spots which experience has proved give favorable customer convenience.

Mass display. Here again retail experience has shown the enormous advantage of a mass display of packages of one specific brand as compared to the display of one or two products. A recent survey of Nielson's give some figures indicating the substantial increase in sales that takes place when a salesman or company is fortunate or clever enough to arrange for a mass display of that product.

Retail cooperation. Of course, books can be written and have been written about the enormous influence on sales that takes place when a store is fully and favorably cooperating with a manufacturer, as compared to what happens when it is indifferent or lethargic. Advertising has countless case histories on record where large, expensive advertising campaigns have flowed over the dam with very little result of sales because of retail indifference, and just as many case histories where relatively small advertising campaigns have proved outstandingly successful because of the active cooperation of retail stores.

Even in this day when the advent of television, mass advertising, and mass distribution has forced many manufacturers to take over the entire burden of selling and to think of retailers as faceless, automatic dispensing machines, nevertheless the biggest and the wisest of these advertisers do not fool themselves as to the vital need for all possible retail cooperation. It is not by chance that some of the toughest, dirtiest, most vicious competition for that toughest of all competitive retail markets, that is the grocery supermarket, is carried on by the leading makers of bread and the leading sellers of milk.

Just about the height of incompetence in business today is to spend a large sum of money to advertise nationally a package product and then fail to exert the most active vigilance and study to procure the utmost out of distribution.

While the salesman is the front line soldier whose duty primarily it is to get the most out of distribution, the salesman is normally frustrated and helpless without the clearest kind of strategic thinking and planning on the subject at the home office. This is the study that ought to occupy the best brains in selling, advertising, and management in the companies. It is probably true no matter how clever and effective and no matter how much time they spend in working toward this result, that is, getting the most out of distribution, that there will always be something further to be done. After all, getting the most out of distribution is a problem in human relations.

Packaging and Selling

Selling by Smell

The attempt to make the sense of smell an important instrument in selling has had a long, rocky history without very many tangible results. In spite of the fact that a somewhat parallel sense, that is the sense of color has made enormous strides as an instrument in selling, has not seemed to help the sense of smell in any tangible way. In the past there have been notable efforts to scent a wide variety of merchandise such as infantwear, writing paper and many other products. In addition, a great deal of work has been done both for scenting paper and for scenting ink so that the sense of smell could be used in various ways in advertising.

It has always seemed to us that the potency of the sense of smell in creating a vivid mental picture, in memory recall and in its emotional appeal some day may make this particular sense as potent as those other senses, that is touch, hearing, and sight in creating wants and desires.

It may be that one of the most important obstacles in this development has been a successful technique for applying the proper scent to the product in a way that would give some lasting value to the odor.

A recently formed company, that is Fragrance Process Company of 73 Sullivan Street, New York, N. Y., has developed a process which seems to hold a real and a new promise. This is primarily a process for scenting paper.

The odor is incorporated in a jelly-like compound which printers use to imprint their paper. This jelly is applied by the printer with a very simple process. There is no use of heat or spraying. While this jelly contains none of the chemical properties or ingredients of ink, it does show a similar physical capacity for penetrating paper evenly and quickly. Any uncoated stock is readily adaptable to the FPC process.

With this process odor is said to last, under normal conditions, for 90 days. A single exception, that is coffee, will hold up for only 10 to 12 days.

We understand that some extremely interesting applications of this process are now in the works with several leading companies. One very large pharmaceutical company will use this process in direct by-mail to doctors for a new vitamin having a fruit flavor. The paper of these mailings will be impregnated with an excellent odor of this flavor.

Another pharmaceutical company will introduce a product for the treatment of hay fever with all promotion mailings impregnated with a grass odor.

The Borden Company has been using the odor of fruit flavors in a series of mailings with great success.

We also heard that in November a leading national consumer magazine with five million circulation will carry a color insert impregnated with the odor of the product to be introduced.

We are anxiously waiting to see how this scented advertising insert works out. Up to date, experiences with scented paper in publications, either by means of a scented ink or by spraying the paper, have not been very successful. This advertising insert may historically be the first time in which the sense of smell has been used for selling and advertising purposes, with success, in a consumer publication.

Retail Package Problems

Retailers think that manufacturers should work a great deal more closely with them in packaging problems.

That is a conclusion of packaging experts, which came out in discussions at the recent Packaging Clinic sponsored by the National Retail Dry Goods Association.

The packaging experts at this retail clinic believe that suppliers should recognize that packaging is a broad concept which includes warehousing, price marking, installation, fixturing, sales information, rewrapping and delivery. Suppliers who can help retailers perform these tasks more efficiently through packaging can generate greater sales for their products, it was made plain.

We are glad to hear the retailer's viewpoint at what is needed in packaging. We have already had the viewpoint as it concerns display on the retail shelf. We have heard from the supermarket on what is needed at self service. We have heard from television as to what is needed as to visibility on the screen and, of course, the manufacturers own production and shipping department have always been very vocal as to what is needed there.

Quite a while ago we counted up over sixteen vital and essential characteristics required for the modern package as outlined in articles or speeches by various experts. Now apparently a few more vital requirements should be added.

The retailers also maintain that a package can actually be cheaper than not packaging at all. They base this contention on (1) proper packaging largely eliminates the need for product tags and tickets; (2)

Truer than ever before, it is the package that lights the way to sales. We've been proving this to major business for over 30 years. Our contribution: Design, Development, Delivery—all on time. Our aim: a package that increases your sales. May we tell you more?

Sun Tube
CORPORATION
HILLSIDE, NEW JERSEY
Waverly 3-0400

St. Louis 24, Missouri: Marvin Yates Co., 8230 Forsyth Blvd., Clayton Forsyth Bldg.
Cincinnati 8, Ohio: Ralph H. Auch, 3449 Custer Road
New Orleans 19, Louisiana: R. P. Anderson Co., 925 N. Solomon Pl.
Houston 6, Texas: R. P. Anderson Co., 514 West Main St
Dallas 19, Texas: R. P. Anderson Co., 2503 West Mockingbird Lane
West Coast: Wm. J. Stoepker, 301 E. Colorado, Arcadia, California
Canada: Sun Tube Corp., 145 Spruce Street, Ottawa, Ontario
Mexico: Tubos de Estano, S. A. de C. V., 174 Oriente No. 267, Colonia Montezuma, Mexico, D.F.

folding cartons for display purposes are less costly than bulky shelf boxes; (3) transportation and unpackaging damages and returns are cut when merchandise is pre-packaged; (4) packages can be standardized for economy, and (5) the package is not only a container but also an advertising and sales medium, and, hence, part of the cost of packaging can be charged off to promotional expense.

We like that last phrase. This is about the only thing in the company budget that at some time or another has not been charged off to the advertising appropriation. Now we have the package contending for a slice of the advertising appropriation. This may be an historic turning point in the history of the packaging industry in which several hundred million extra dollars were discovered for packaging.

No Fooling

In our July issue we had a little news note about Flav-R-Straws. This is a rather intriguing product which consisted of a straw with a flavor filter. By using this straw in a glass of milk, you can flavor the milk with a variety of flavors, as vanilla.

In a rather facetious mood we asked the question, "Why not a straw with a built in castor oil?" Now we have a letter from Albert Shanksky, Director of Research of Samuel Bonat & Bro., Inc., Paterson, N. J., in which he writes, "There is more truth than jest in just this little comment. Undoubtedly there would be a great market if a straw could be made having not only built in flavor, but built in accurate passage of aspirin for children. Apparently one of the most difficult things in giving medicaments to children is letting them know that they are taking medicaments.

"In any event, I think that a very great market could be opened by this method."

In this most wonderful of all countries, where Americans are so enthusiastically eager for new devices, gimmicks, and badgets, we ourselves, see no reason why a merry race could not be won with a product of this sort.

The Creme of Creams

Let us add to the roster of Cosmetica Americana a new cream of Estee Lauder.

We were deeply impressed this morning to receive an envelope within an envelope looking just like a wedding invitation. On opening this rich linen envelope, we discovered two enclosures. One, a little four page engraved piece in which Estee Lauder "announces with pride the perfection of a Creme of Creams—Re-Nutriv" the most expensive facial preparation in the world."

On reading further, we discovered that in this cream the "costly cosmetic miracle-workers have heretofore been obtainable only in separate preparations, but are now ali available 'in just as high concentration' in this one jar of Re-Nutriv, the Creme of Creams."

We are sure that the chemists and the technical men of our trade will be deeply interested in the formula of this creme of creams. Fortunately, this little invitation, to my open mouth amazement, gives part of the formula.

This formula was "entirely developed via a new approach after extensive research both here and abroad, and with the seal of approval from one of the top University's eminent Professors of Chemistry."

The formula contains:

A—

Turtle Oil: known for its super lubrication and nourishment.

Shark Oil: one of the world's finest sources of Vitamin A, so vital to skin health.

Royal Jelly: the substance from the Queen Bee so recently found to be so remarkable in preserving the "bloom of youth."

Silicone: the modern new material that helps to retain the so-needed moisture in the skin, resulting in a youthful, fresh appearance.

Leichol: the new chemical discovery that is a natural food supplement. Assists in restoring skin tissues to a healthy, firm supple visage.

Plus 20 more ingredients never before put into one single jar.

The second enclosure is a tiny envelope very much like the one you would receive announcing the birth of a baby to a friend. On opening this tiny envelope, we discovered an engraved card which said, "Estee Lauder's Re-Nutriv, the Creme of Creams is outstandingly presented in a distinguished 22-karat golden jar, encased in its own golden box." Under that in discreet type is the list of prices which we quote with awe.

Sixteen ounces	$115.00
Eight ounces	70.00
Four ounces	45.00
Two ounces	30.00
One ounce	20.00

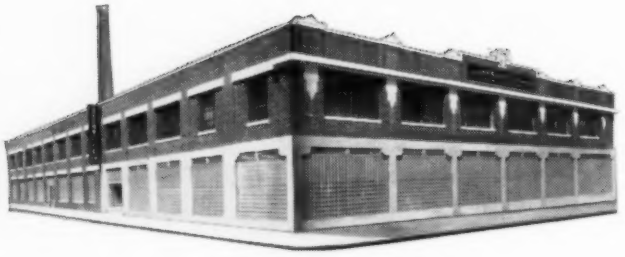
Important Flavor

Flavor is so important for chewing gum that Beech-Nut Packing Company is now granting fellowships at schools and universities for research work in soil improvement, irrigation, crop rotation, and general improvement of crops and farming methods to help insure continuing high quality flavoring ingredients for its gum.

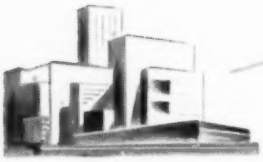
While not in the slightest minimizing the importance of this research, we think that our expanding economy and expanding consumption will need more and more flavor research in the chemical laboratory, as well as on the farm.

Cosmetic Expansion

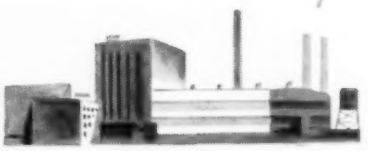
There seems to be an increasing interest in the cosmetic industry for pharmaceutical expansion. In a recent publicity release Max Factor & Company states that, "In line with current long-term expansion plans the company has broadened and enlarged both the structure and the operation of its recently created



You command many markets at IVERS·LEE

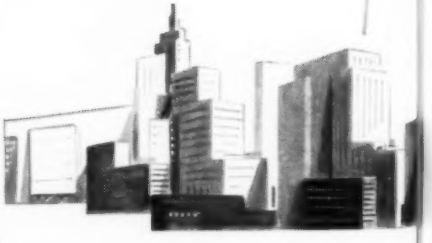


Unit-Packaging diversity is yours at Ivers-Lee. Manufacturers who use I-L Unit-Packaging services encounter no limitations. Their ingenuity and ours gives them the package they want, for the market they are after.



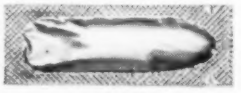
During our 35 years experience we have created and produced thousands of different Unit-Packages—using cellophane, foil, pliofilm, polyethylene, saran and laminated combinations—for liquids, tablets, capsules, creams, powders and other products.

You solve your Unit-Packaging problems quickly, easily and economically when you turn first to Ivers-Lee.



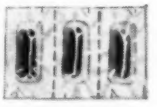
POWDERS

CREAMS



LIQUIDS

TABLETS



CAPSULES

IVERS UNIT JL PACKAGING LEE CO.
215 CENTRAL AVENUE NEWARK, NEW JERSEY

CREATORS OF A THOUSAND AND ONE DIFFERENT TYPES OF UNIT-PACKAGES

for tablets, capsules, triturates, powders, liquids, creams and unusual products during 35 years of Packaging Service.

Pharmaceutical division to include the handling of specialty products in addition to pharmaceuticals. The pharmaceutical operation of the new division will continue to handle Sebb, a preparation for the relief and control of dandruff, introduced approximately a year ago, as well as other contemplated pharmaceutical products now in the process of research."

Two other cosmetic companies with well developed pharmaceutical divisions in progress are Shulton and Revlon.

As we have commented before, cosmetic techniques and manufacturing processes are well adapted for the production of certain types of pharmaceuticals. There is a certain cosmetic skill which can undoubtedly bring a contribution to the pharmaceutical branch of the industry. Those cosmetic companies who are approaching a point of diminishing returns in advertising and selling expenditures for cosmetics, would do well to explore pharmaceutical development along the lines now used by these three leading cosmetic companies.

World Wide Industry

All the troubles revolving around the Suez Canal seems to mean very little in the daily routine of this industry.

And yet, according to a long report in the Wall Street Journal, quite a number of manufacturers in this industry would have the cost of distribution to some good export markets substantially increased if things are not settled favorably here.

To quote from this article, "A typical U. S. freighter, thirteen days out of New York and bound for Saudi Arabia, Ethiopia and Iran had aboard four cartons of Skin Bracer (Mennen) addressed to Abdulla Ali Khaza Alkubar of Saudi Arabia. Also aboard were one hundred cartons of cough drops from Vick Chemical to an agent in Teheran.

In another freighter's cargo manifest were the products of Parke-Davis, Chas. Pfizer, and Cutter Laboratories."

Bigger Retailing

More than in any other branch of distribution the food supermarkets are building up to a concentration of power that must lead to a reappraisal of marketing methods through these retailers. The fact is that today just fifteen food chains are doing one third of the retail food business. These chains, on a basis of the volume of business that they each do, are substantially more powerful as business aggregation than the vast majority of the manufacturers who sell to them.

It is reasonable to suppose that as the period of expansion into new retail units stabilizes that at least some of these chains will turn in the direction of establishing their own primary sources and their own manufacturing for many products, just as the A&P has done.

It is also likely that a new type of salesman will have to emerge who will have the statute to work effectively with these giant distributors, and that a different type of salesman, operating more as an expert in point of sale problems, will have to operate with the individual store.

It is also a fair assumption in our mind that big retailing will more and more make necessary big manufacturing. At the very least, the problems of a small and medium size manufacturer and the problems of the local or sectional operator are bound to substantially increase.

Several months ago we published a list of the ten top food chains based on an estimate from one of the leading food journals. Now we list the 1955 sales of fifteen leading food chains as recently reported in Printers' Ink:

	'55 Sales
A&P	$4,289,000,000
Safeway	1,738,889,565
Kroger	1,216,243,360
American	654,727,474
National Tea	575,585,266
First National	470,628,572
Food Fair	410,053,400
Colonial	380,009,045
Winn-Dixie	350,000,000
Jewel Tea	301,536,285
ACF-Wrigley	300,000,000
Grand Union	283,278,809
Loblaw	211,910,835
Bohack	140,236,308
Penn Fruit	108,503,165

Market Books

The NWDA Drug Trade Market book has just been issued. This addition has numerous innovations and improvements over previous issues.

Some of the valuable data in this very useful reference book include the NWDA market area supplementary to the wholesale drug map; and then by counties the number of families, the percentage of families in the U. S., the number of drug stores, the number of drug chains, the 1948 and 1954 sales for drug stores, and the percentage of such sales to that of the U. S.

This is a valuable country reference book for any one selling to drug stores.

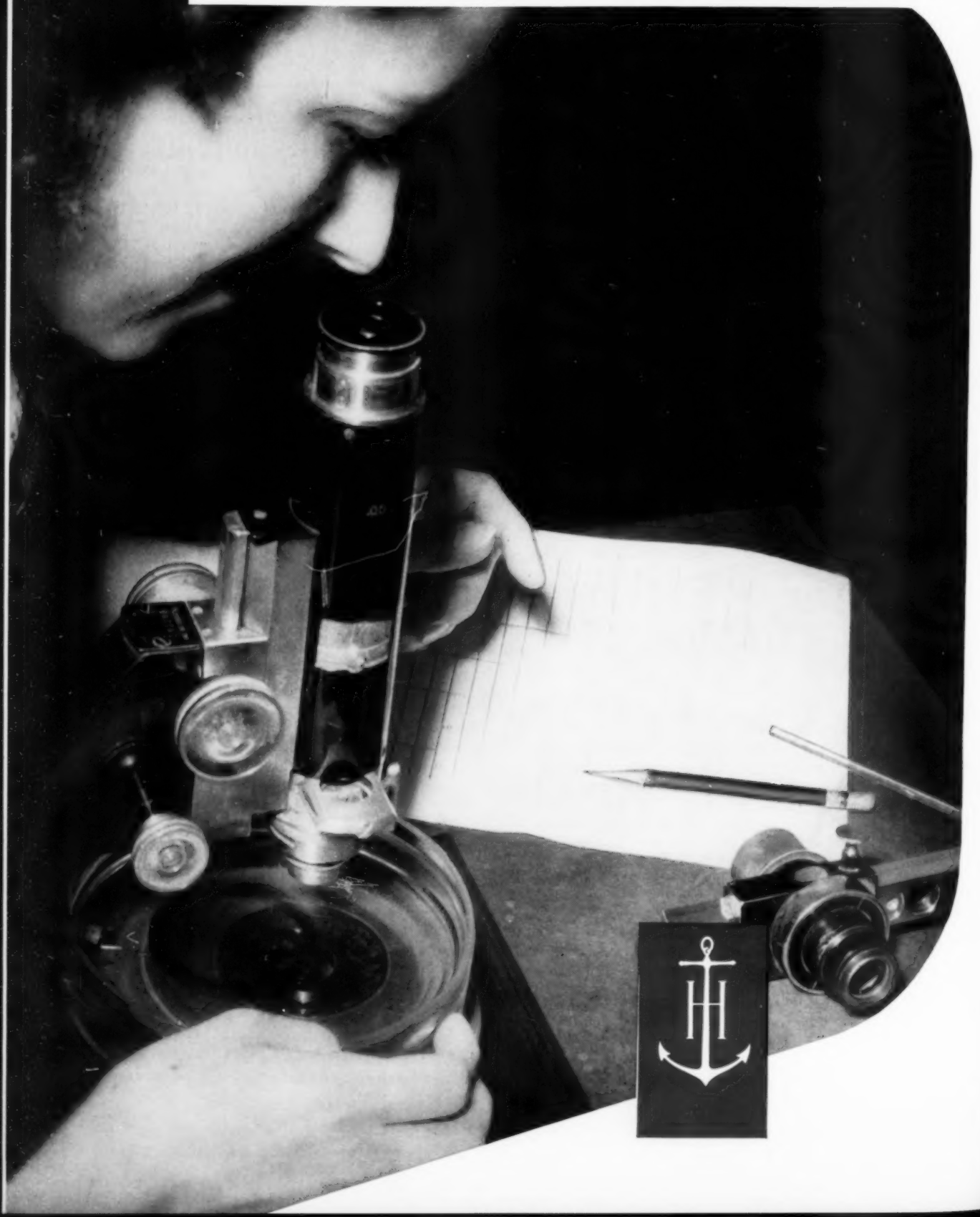
Co-op Advertising

The Association of National Advertisers is in again with a study of co-op advertising. This study was made by the Cooperative Advertising Committee of the ANA together with Dr. Roland L. Hicks, Assistant Professor of Advertising at Pennsylvania State University.

Seventy-nine companies of the one hundred eighty-five members reporting used Co-op advertising and spent 15 per cent to 18 per cent of the total budget for this purpose.

Some years ago the ANA published a very comprehensive study of Co-op advertising in which they listed the member's reasons for liking or disliking this form of advertising. As we recall, somewhere around

CONTROL IS



IS

ALL-IMPORTANT

with Anchor Hocking!

Regardless of what you pack Anchor Hocking makes an Anchorglass container in a style, size and color to most attractively, efficiently and economically package it. And, to seal your glass-packed products, there are Anchor molded screw caps and metal screw, lug and vacuum types available—one or more of which will completely satisfy your diverse and specialized requirements.

THE controls applied throughout your production and packaging operations are all-important to you. By the same token, the manufacturing controls employed by Anchor Hocking are very important to you, also.

Anchor Hocking exercises literally hundreds of exacting controls, tests and checks daily in the manufacture of its glass containers and closures. From the selection of all raw materials used to the final inspection, every operation is under meticulous control.

And all of this control, involving highly trained chemists, bacteriologists, engineers, other technicians and personnel, is done but for one reason. And that is, to provide you with uniform, high quality, dependable Anchorglass® containers and Anchor® screw, lug, vacuum, metal and molded closures that will give you high-speed, dependable production and protection.

ANCHOR HOCKING

GLASS CORPORATION *Lancaster, Ohio*

one hundred reasons were given for liking Co-op advertising and just about an equal number for disliking it.

In this study, the association lists the useful functions of advertising which are in order of importance.

1. Stimulates dealers to start advertising.
2. Causes other dealers to do more advertising.
3. Stimulates dealers' interest and good will.
4. Tells customers where to buy.
5. Supports national advertising.
6. Helps meet competition.
7. Helps get local rates in media.

The following reasons are given why twenty-nine of these national advertisers discontinued Co-op advertising. None of these reasons are as positive, decisive, or even as bitter as the reasons given in the previous survey for disregarding Co-op advertising. Here are the objections.

1. Product shortages.
2. Didn't get full value.
3. Competitors not using.
4. Changed merchandising plans.
5. Set up new co-op plan.
6. Robinson-Patman Act.

Warning?

We were somewhat startled and confused to read, in a recent issue of Chemical Week, the editorial headline for a news note that Warner-Chilcott Laboratories, a division of Warner-Lambert, will open up a veterinary medical unit this fall.

The headline was "Cave Canem."

In our school book this means Beware of the Dog. We just can't figure out the direction in which this warning is pointed.

We suspect that the learned editor of Chemical Week really meant "Caveat Canis" which would be a clear warning to the canine population that Warner-Chilcott is on its way.

Not So Easy

According to a recent rumor National Dairy Products Corp. is said to be negotiating a merger with a glass container producer, that is Metro Glass Co., Inc.

We hope this is not a trend. This industry, at one time, had some pretty sad experiences in this so-called vertical integration. We remember a case of burnt fingers with one pharmaceutical and cosmetic company which owned a paper box producer, with another pharmaceutical company who owned a collapsible tube producer, with still another who owned a shipping container producer.

We also remember when one of the leading users of glass bottles in this trade periodically threatened the glass container supplier with either buying or starting a glass container company of their own. Although this drug company used enough glassware to maintain quite a substantial little glass company, every time they got down to brass tacks with figures they backed off.

The idea that money can be saved in this kind of vertical integration is almost always an illusion and a snare. Not only is there no saving of money, but there is a dangerous and substantial loss of initiative in research and of contact with every new development in that kind of product. In addition, there is no one to ball out when things go wrong.

Medical Market Guide

Modern Medicine Publications, Inc. of Minneapolis, Minn. has just published the 1956 Modern Medicine Medical Market Guide. This book contains the following sections: The Medical Market—Data on Illness, Population, Births and Deaths; the Physician Data which gives information on the Patient Load of Physicians, Movement of Physicians, Motivating Factors causing Physicians to Use and Prescribe a Particular Brand, and the Physician's Role in Hospital Purchases.

Included also are data on Drug Store Sales and the Marketing and Promotion of Pharmaceuticals, Pharmaceutical Sales in the United States, and State and County Pharmaceutical Sales.

Trading Stamps

As a commentary on this wonderful world of ours, a recent survey showed that a majority of grocers do not like trading stamps, but a majority planned their continued use.

While trading stamps increased volume in 64 per cent of the stores in the survey, they also increased operating expense in 78.4 per cent of the stores. Forty-nine and one-tenth per cent of the operators said that they decreased earnings.

Free Makes Money

In Omaha, Nebraska Drive-In Movie Theatres are giving away free tickets and still making money. One operator said, "80 per cent of our income comes from purchases made at the concession stand." Since free movies are about the only thing that grocery supermarkets and food manufacturers have yet to try, this may be something that is on the horizon for retail markets.

Related Product Selling

The Companion Selling Institute of 110 East 42nd Street, New York has been formed to promote a system of related product selling and display for drug stores. Druggists will be furnished with a program of charts and data on suggestive selling, with handy cards for effective selling sentences. Three thousand druggists are expected to receive this plan. Advertising space will be made available on these suggestive selling forms.

Growing

According to "Printers' Ink" magazine the expenditure for advertising in 1955 was $9,200,000,000 and this year should reach the total of $10,000,000,000.

NEWS IN PACKAGING...

Collapsible-Tube Use Report

Collapsible metal tubes used for drugs, cosmetics, dentifrices and shaving creams accounted for 84 per cent of the tube industry's production during the first seven months of this year, according to a report by the Collapsible Tube Manufacturers Council, which last month marked the 115th anniversary of the tube's invention. The number of tubes used in the four fields was 539,804,880, a fourteen per cent increase over the same period last year.

The metal tube was invented by an American portrait painter, John Rand. He was granted a patent by the U. S. on September 11, 1841.

"The collapsible tube apparently was the brainchild of Rand's vexation more than anything else," Lester B. Platt, executive secretary of the Collapsible Tube Manufacturers Council, has explained. "Like other artists of his time, Rand had to grind his own paints and mix them with oil for use as needed. For a busy artist this was an almost daily chore because left-over colors, though packaged in animal skin pouches, soon dried out. Rand, however, determined to solve the problem and he did. The collapsible metal tube was the world's first convenience package."

Crown Cork Treasurer, Purch. Dir.

Albert M. Norman has been elected treasurer of Crown Cork and Seal Company, Inc. Controller of Lukens Steel Company prior to joining Crown Cork, Mr. Norman has had over twenty years of diversified accounting experience.

Appointed director of purchasing for Crown Cork is Albert W. Rohde, who has served since November, 1954 as manager of purchasing in the company's can division.

ALBERT M. NORMAN

Italian Balm Lotion Spray, reportedly the first push-button lotion dispenser, is packaged in a green, white, and pink checker-board pressurized container, topped with a large white plastic cap.

O-I to Raise Prices

Prices of nearly all its products will be increased, according to an announcement by Owens-Illinois Glass Co. Carl R. Megowen, president, has said that for some lines increases will be substantial, and that "the company is conducting a careful study to make sure that the increases are the minimum necessary to secure its ability to maintain high quality of product and adequate service."

Labor costs have continued to rise at a rate exceeding increases in productivity, he said, and freight, fuel, material and service costs have increased as has the cost of replacing and modernizing production facilities.

"The demand for improved products has quickened the pace of obsolescence," he said, "and current depreciation allowances, based on original costs of plant properties, are inadequate to cover the cost of replacing production facilities."

Burn Aerospray

Antiseptic First-Aid Oil has been repackaged by Kip, Inc. in a spray can and called Burn Aerospray. The button-operated can produces a fine mist which soothes and promotes healing on injured areas.

Crown Cork Foreign Dept. Mgr.

Albert E. Ponter Jr. has been appointed manager of the foreign department of Crown Cork and Seal Company, it has been announced by Robert F. Duemler, vice-president and director of sales.

Hazel-Atlas a Cont. Can Div.

The Hazel-Atlas Glass Company has been acquired by the Continental Can Company and will be operated as a division of that company. This follows the refusal of Federal Judge Sidney Sugarman to issue an order, sought by the Anti-Trust Division of the Department of Justice, which would have restrained the merger.

Howard G. Lewis, formerly executive vice-president of the Hazel-Atlas Glass Company, has been elected a vice-president of Continental Can and will supervise operations of the new division.

"With the addition of glass containers to our diversified line of packaging," General Lucius D. Clay, chairman of the board of Continental Can, said, "we have come one step closer to our goal of being able to provide a complete packaging service to American industry. At the same time, we expect to become, through our new Hazel-Atlas Glass Division, a strong and progressive factor in the glass industry."

Armstrong Cork Phila. Mgr.

George F. Esslinger, assistant district manager of the Philadelphia office of of Armstrong Cork Company's Glass and Closure Division, will become manager of that office January 1, it has been announced by R. H. Hetzel, general sales manager of the division. Mr. Esslinger will succeed Bruce A. Ludgate Jr. whose retirement becomes effective December 31.

Zahn in PI's Top Tech. Post

Lawrence H. Zahn, manager of methods and package development at Ciba Pharmaceutical Products Inc., was selected as chairman of the technical operations committee at the 18th annual forum of the Packaging Institute, held in Cleveland, September 10 to 12.

Mr. Zahn also was elected a director of the institute and a member of its executive committee.

LAWRENCE H. ZAHN

How to save up to 6¢ per unit

on your AEROSOL PRODUCT

It doesn't take a very sharp pencil to figure the profit you are losing when you ship your aerosol product from an eastern or mid-western warehouse to the west coast. Depending on the method of shipment, it can easily add 2¢ to 6¢ per unit to the cost!

No longer is it necessary to sustain these losses. By taking advantage of G. Barr & Company's new Los Angeles aerosol filling plant, high transportation costs can be EXTRA PROFITS for you and your west coast customers need not wait days for merchandise to arrive from the east . . . it can be made in the same market as it is sold.

With three complete, strategically located plants available—New York, Chicago, Los Angeles—arranging your custom aerosol production can be simplicity itself. Only one management to deal with, yet all three plants operating in accordance with the same high standards to exactly meet your specifications.

Whether your aerosol product is packaged in metal or glass, in thousands or millions of units . . . whether you have a product now on the market, or in the experimental or idea stage, you cannot afford to overlook the production and product development facilities G. Barr & Company provides.

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3601 SO. RACINE AVE., CHICAGO 9, ILLINOIS

PLANTS IN: LOS ANGELES • CHICAGO • NEW YORK

Perfume bottles with a distinctive French flair, detailed in sparkling clear crystal, are available from the French Glass Co. Each bottle is expertly fitted with ground-in glass stoppers to hermetically seal the fragrance.

Addresses Packaging Inst. Group

"The ethical drug industry is constantly striving to reduce production costs while maintaining highest production rates under quality control conditions," John Graham, packaging development engineer of Schering Corporation, told members of the Production Line Seminar September 12 at the 18th annual forum of the Packaging Institute in Cleveland. He delivered the address for Edward M. Wixted, industrial engineering manager of Schering, who was unable to attend the meeting.

Mr. Graham summarized the company's facilities which are built around a good quality control plan and the need for flexibility in handling short-run or high volume production and a wide variety of different containers and packages.

He said that greater emphasis is being placed on air conditioning in packaging areas so as to increase the efficiency of employees and reduce heat problems in packaging operations.

American Can Buys Bradley

The American Can Company has bought Bradley Container Corporation, William C. Stolk, American Can president, has announced.

Bradley, formerly a subsidiary of Olin Mathieson Chemical Corporation and primarily concerned with research and development in the plastics field, began commercial production of tubes and bottles last year.

American Can will maintain the company as a wholly owned subsidiary operating under the Bradley name. Mr. Stolk will serve as president of the new subsidiary, and L. A. Britzke, American Can general manager of engineering, as vice-president and general manager.

Iodent Tube-Sealer Available

Iodent Chemical Company's electric seal-welding process, which tends to eliminate leakage from collapsible tubes, is available to drug and cosmetic manufacturers. Iodent has announced that it will sell blueprints and lease rights for the process to all manufacturers.

The electric welding device can be installed on practically every type of automatic tube-filling machine, and it provides a virtually hermetic seal that in some respects is stronger than the metal itself, according to the announcement. It also eliminates one fold in the usual crimping process, saving that much more metal in the tube.

Iodent has used the process on millions of tubes of tooth paste in the thirteen years since the process was developed by A. J. Lautman, a registered dentist who is president of the company. Last year, Iodent leased rights and blueprints to the process to Parke-Davis.

Royalties are based on a flat sum per year or the number of units sealed. The sealing attachment machine can be easily assembled from blueprints or bought at cost from Iodent.

"Carrier-Band" Packages

"Carrier - band" cartons, modeled after the familiar fold-around cardboard containers widely used in the beer and soft drink industries but perforated at spaced intervals like egg cartons, are being used for packaging toiletries by The Mennen Company.

When distributors and retailers want to send out or display a quantity of Mennen products, they divide the cartons by breaking them apart at the perforations. Cut-outs permit bottle caps to protrude for easy pricing.

Shulton's Old Spice Shampoo is packaged in a cream-colored, unbreakable, seven-ounce plastic bottle, with the clippership design in red.

Disposable Enema Package

Cutter Laboratories is using the Bracon tube as a disposable general enema package for its Enemol. The squeeze-to-use tube is screwed to the vinyl closure of the rectal tube, sealing off the contents of the tube until the patient is made ready. A variable size orifice in the closure is adjusted by rotating the container slightly until the rate of flow is satisfactory. The polyethylene tube is then gently squeezed until the contents are evacuated, and then the tube is discarded.

Bracon polyethylene tubes are made by the Bradley Container Corporation. The vinyl (patent applied for) closure which connects the Bracon tube to the rectal tube was developed by Cutter Engineering Research.

To Present Metal Tube Award

The Package Designers Council will present a $1,000 award to the designer of the most outstanding collapsible metal tube entered in the Third American Package Design Competition, it has been announced. The award has been made available to PDC by the Collapsible Tube Manufacturers Council.

Represent Liquipak, Scott Plastics

Monroe-Danford & Company, Lincoln Park, N. J. sales representatives firm has announced that it is servicing two additional companies.

In the Eastern states, it is representing Liquipak Corp., Alma, Mich, which company provides a packaging service of heat sealing liquids, lotions and creams in paper, foil, plastic or laminated envelopes up to two-ounce capacity.

In southern New Jersey, Maryland, Delaware, Washington, D. C. and eastern Pennsylvania, Monroe-Danford is representing Scott Plastics, Hartford, Conn., which company manufactures phenolic and urea plastic closures.

Patent THOUGHTS AND TRENDS

by Thomas Cifelli, Jr
PATENT ATTORNEY*

RECENT EXPERIMENT A TOTAL FAILURE

The experiment referred to in the title was the one which we tried in the last two issues, involving brief looks at a rather large number of recent holdings of the Federal Courts and the Patent Office Tribunals. Even though the readers of this journal are unbelievably polite they, nevertheless, in their own way, have let us know that they do not approve of the experiment. This verdict is clear from the fact that not a single comment has been received from any reader. In this connection, since DCI readers only write when they are pleased, the meaning of the absence of any comment is quite clear.

So, back to the old method of taking a few rather deep looks at matters thought to be of general interest.

Musk Odorant

Current activity in the field of new musk odorants has recently been reflected in the U. S. patent literature by the granting of two patents to Polak's Frutal Works. These patents are U. S. 2,752,404 and U. S. 2,759,022.

The first of these patents deals with a process of producing indanes from para-cymene.

The second patent, i.e., U. S. 2,759,022, covers the musk odorant itself and will therefore be considered in detail.

By way of setting the stage for the invention, the Polak inventor, Kurt Fuchs, of Germany, notes that the nitrobutylcymenes, which have been suggested as having musk-like odors, have a number of objections. The objections include the tendency to decompose when exposed to light and their reactivity with alkali, thereby causing the objectionable discoloration of soaps or cosmetics in which these materials are employed.

The patent states that the new musk of Fuchs overcomes the foregoing objections.

The new odoriferous materials are made by reacting para-cymene with an alkyl halide, the alkyl group of which contains from four to six carbon atoms, aliphatic alcohol containing from four to six carbon atoms, or an alkene containing from four to six carbon atoms, isolating the resulting para-cymene reaction product and acetylating the isolated para-cymene reaction product.

The patent states that the preferred compound is a "nuclear acetylated tertiary amyl derivative of para-cymene."

The conditions of the process are given in the patent as follows:

> As noted above the first step involves condensing para - cymene with the appropriate alcohol or alkene in the presence of an alkylation catalyst, such as sulfuric acid or zinc chloride, or with the appropriate alkyl chloride in the presence of a Friedel-Crafts catalyst. Desirably, this condensation reaction employing an alkyl chloride is carried out at a temperature of −10° to 50° C., preferably 0° to 25° C. When utilizing an alcohol the temperature desirably is within the range of −20° to 50° C., preferably 0° to 20° C., and when employing an alkene the temperature may be within the range of 0° to 50° C. When following the procedure of condensing the cymene with an ancyl halide a temperature of −10° to 70° C., preferably 30° to 60° C. may be used.
>
> The cymene reaction product thus produced is acetylated, desirably at a temperature within the range of 0° to 60° C., preferably 10° to 30° C.

Example 2 reproduced below gives the details of the formation of the preferred product:

> One thousand grams of concentrated sulfuric acid are cooled to 10° C. in the flask. A mixture of 500 grams p-cymene and 120 grams of tertiary amyl alcohol are added to the sulfuric acid while vigorously stirring. This mixture is added over a two hour period, care being taken that the temperature of the mixture does not rise appreciably over 0° C. After completion of the addition of the p-cymene amyl alcohol mixture, the reaction mixture is stirred for a half hour and then poured on ice. The colorless oil layer is separated in a separatory funnel and washed with aqueous dilute sodium hydroxide and water until neutral. The neutral oil is then distilled under vacuum; a forerun of unreacted p-cymene is first distilled over followed by the desired reaction product as a colorless liquid boiling at a temperature of 103° C. at 7 mm. of mercury. Its density at 15° C. is 0.906-0.908.

The cymene reaction product may be converted into the ketone as follows:

> Four hundred grams of pure nitrobenzene and 140 grams of anhydrous aluminum chloride are agitated in a flask until complete dissolution takes place. The flask is cooled with water to maintain it at a temperature below 20° C. Two hundred grams of cymene reaction product and 85 grams of acetyl chloride are slowly added to the nitrobenzene - aluminum chloride mixture by means of the dropping funnel over a three hour period. During the reaction the temperature is kept at about 10° C. by cooling with water. When the gas evolution ceases the reaction mixture is stirred for an additional half hour. The thick liquid mass thus produced is poured into ice water while vigorously stirring and the stirring is continued while adding hydrochloric acid until the complex compound of the aluminum chloride is completely decomposed. The resultant heavy yellow oil is extracted with benzene and washed with water and sodium acetate solution until neutral. After distilling off the solvent 640 grams of a mixture of nitrobenzene with the ketone are obtained from which the nitrobenzene can easily be separated by repeated distillation under vacuum, since the boiling point of the nitro-

*Richards and Cifelli, Newark, New Jersey.

benzene is about 70° C. at 5 mm. of mercury and that of the ketone is 140° C. at 5 mm. of mercury. In this way 390 grams of nitrobenzene are recovered and about 200 grams of pure ketone product are obtained. This ketone boils at a constant temperature and distills over practically without residue as a pale yellow colored liquid having a strong musk odor. This liquid can be crystallized and thus separated into the isomeric fractions of higher and lower melting point.

A suggested formula for perfuming white soap is given below:

100 g. of lavender oil
20 g. of spike oil
60 g. of cedar wood oil
30 g. of sandalwood oil
80 g. of patchouli oil
80 g. of oakmoss resinoid (colorless)
60 g. of iris resinoid
60 g. of geranium oil
100 g. of coumarin
260 g. of spike lavender oil
150 g. of reaction product of this invention made by condensing p-cymene with a compound containing a tertiary amyl group and acetylating the resultant reaction product.

The patent also gives a formula for an oriental type of perfume which can be employed for making lotions, perfumes and creams, the formula being as follows:

150 g. of labdanum absolute (colorless)
80 g. of clary sage oil
50 g. of amyl salicylate
50 g. of sandalwood oil
10 g. of rose oil (essence absolute)
60 g. of civet tincture
100 g. of bergamot oil
50 g. of orange oil
50 g. of patchouli oil
50 g. of cedar wood oil
50 g. of ylang ylang oil
50 g. of iris resinoid
250 g. of reaction product of this invention made by condensing p-cymene with a compound containing a tertiary amyl group and acetylating the resultant reaction product.

It is of interest to note that the three product claims do not set forth the chemical structure of the product but sets forth the process by which the product is made. Illustrative of this is claim 1, which is reproduced here:

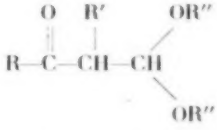
> A photochemically stable para-cymene derivative having a musk odor and which is inert to alkali produced by reacting para-cymene with a compound from the group consisting of alkyl halides, the alkyl group of which contains from four to six carbon atoms, aliphatic alcohols containing from four to six carbon atoms and alkenes containing from four to six carbon atoms in the presence of a condensation catalyst, separating the para-cymene reaction product from the reaction mixture and acetylating the separated reaction product.

Well-Rounded Patent Protection

An excellent example which illustrates the policy followed by many aggressive companies of not putting all their patent "eggs in one basket" is afforded by the issuance of four patents to Eastman Kodak Co. These patents are Nos. U.S. 2,760,984-7, inclusive, all relating to the preparation of β-ketoacetals.

These β-ketoacetals are useful intermediates in the synthesis of pharmaceuticals, including, vitamin A and the like.

They may be represented by the formula:

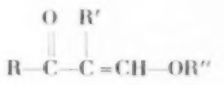


wherein R is an alkyl or aralkyl group, R′ is either hydrogen or an alkyl group and R″ is an alkyl, aryl or aralkyl group.

The β-ketoacetals are of course not new and a number of methods have been proposed for their preparation. It may be of interest to summarize some of these methods as was done in one of the Eastman Kodak patents, as follows:

> Nelles (United States Patent 2,091,373) set out a preparation involving an alkyl 2-chlorovinyl ketone but this synthesis is difficult to handle on a commercial scale because of the nature of the intermediates. In 1943, Kaushal (J. Indian Chem. Soc., 20, 53) reacted sodium hydroxymethylene acetone with ethyl alcohol in the presence of ethyl bromide to form the β-ketovinyl ether. This method actually forms a mixture of the β-ketovinyl ether and the β-ketoacetal as shown by subsequent work. Dyer et al (J. A. C. S., 56, 222 (1934) had previously shown that the sodium formyl derivatives, specifically sodium formyl acetate, formed acetals with ethyl alcohol in the presence of hydrogen chloride. Sugasawa (Japanese Patent 177,821) and later, Richmond (United States Patent 2,570,713) reacted sodium hydroxymethylene acetone with ethyl alcohol in the presence of hydrogen chloride to form β-ketobutyraldehyde diethyl acetal but the yield was low (20 per cent) and the product contained a sizable quantity (24 per cent) of triacetyl benzene.

As is customary in many U. S. patents dealing with processes, the prior art methods were said to be deficient in a number of respects, for example in the yields obtained and in the formation of by-products. In particular, the β-ketovinyl ethers of the formula:



were singled out.

Eastman Kodak inventors developed three different processes for the preparation of the desired β-ketoacetals, all of the processes being stated to overcome objections of prior art processes.

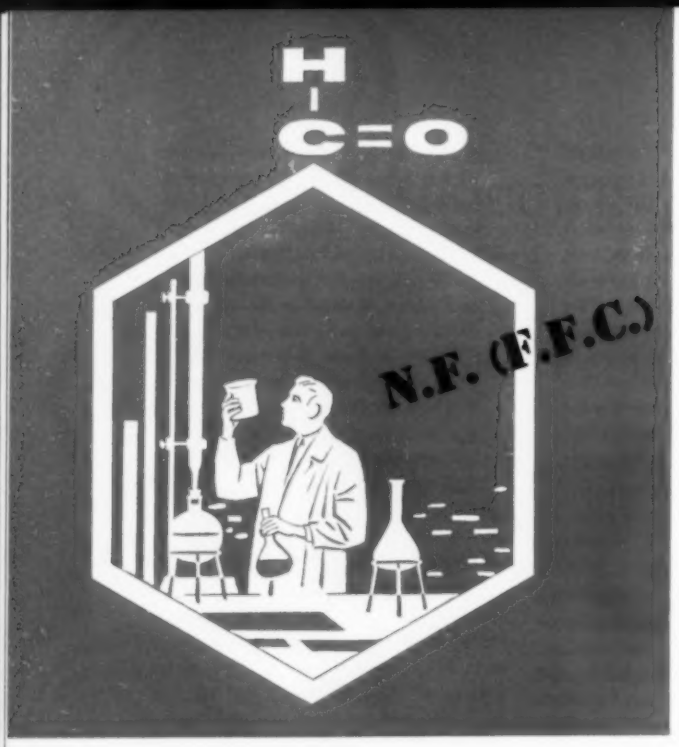
The process covered by U. S. 2,760,985 involved essentially the reaction of an alkali metal enolate of a β-ketoaldehyde with an alcohol in the presence of an acidic catalyst.

U. S. 2,760,986 involves the formation of the β-ketoacetals by reacting an alkali metal formyl ketone with an aliphatic monohydric alcohol in the presence of hydrogen chloride, under substantially anhydrous conditions, and in the presence of metal formate.

The process of U. S. 2,760,987 involves the formation of the dialkyl acetal of β-ketobutyraldehyde by reacting an alkyl metal formyl acetal, an alkyl halide, and an alkyl alcohol in the presence of an alkali metal iodide.

No, we have not forgotten about U. S. 2,760,984. In spite of the claimed advantages in the patented processes, one of which is "obviating the formation of β-ketovinyl ethers" apparently this object could not be accomplished completely as Eastman Kodak has seen fit to obtain protection on a method of purifying the β-ketoacetals by separating them from the β-ketovinyl ethers which are said to be present usually in admixture with the β-ketoacetals. The method of separation involves the selective polymerization of the β-ketovinyl ethers by means of alkaline-reacting catalysts.

(Continued on page 573



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o-Chlorobenzoic Acid
p-Chlorobenzoic Acid
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NEWS...

Pharmaceutical Service Clinic

A Pharmaceutical Professional Service Clinic, reportedly the first of its kind in the industry, was featured at the 58th National Association of Retail Druggists Convention, September 17 to 21 in Cleveland.

The clinic, held under the auspices of Lederle Laboratories, simulated a doctor's office and the pharmacy department of a drug store. Pharmacists demonstrated their professional skill by answering questions about important drug products asked over a special telephone hook-up by the "physician" in the neighboring "doctor's office."

According to W. M. Simpson, manager of retail sales for Lederle, the purpose of the clinic was to point up the pharmacist's role of advisor to physicians on pharmaceutical products.

Schering Appoints Michaux

Larche H. Michaux, professional sales representative in the Domestic Sales Division of Schering Corporation, has been appointed to the technical service desk of the firm's International Division, according to W. H. Conzen, manager of the International Division.

Lilly Names St. John

C. Virgil St. John has been appointed manager of production for Eli Lilly and Company's Tippecanoe Laboratories. He has moved to Lafayette from Indianapolis, where he has been department head of antibiotic final purification.

Parenteral Assn. Meeting

Development, production, control, and marketing of injectable medicine will comprise the three-day program of the annual meeting to be held October 31 to November 2 at the Hotel Barbizon Plaza, New York, by the Parenteral Drug Association. Latest developments in manufacturing and control equipment will be exhibited.

Abbott Expanding Plant

Abbott Laboratories has announced a half-million-dollar contract for a chemical manufacturing building which will increase the capacity of the company's bulk chemical plant at North Chicago by twenty per cent. Construction is scheduled to be completed next April, and the unit will be in operation before June.

B-M Administrative Asst.

Parker Lee, for the past seventeen years sales manager of the Lather Brush Division of the Rubberset Company, has been named administrative assistant in the Bristol-Myers Products Division, according to an announcement.

Bard V.P. and Gen. Mgr.

E. Richard Memoli has been named vice-president and general manager of Bard Pharmaceuticals, Inc., it has been announced by Robert H. Broh-Kahn, M.D., president.

Chesebrough-Pond's Res. Dir.

Dr. Henry R. Kreider Jr. has been appointed director of research for Chesebrough-Pond's Inc., Jerome A. Straka, president, has announced. Prior to accepting his new position, Dr. Kreider was eleven years with the Wm. S. Merrell Co., where he was assistant director of research. Previously, he was with Mead Johnson & Co. and the Laboratory of the American Medical Association.

Parke-Davis Expansion

Parke, Davis & Company, having last month dedicated its $2,000,000 Canadian laboratories, has now announced plans to more than double the size of its existing pharmaceutical manufacturing laboratories in Rio de Janeiro.

Located on newly acquired property adjacent to the present Parke-Davis branch in the Gavea district of Rio de Janeiro, the $1,500,000 expansion program will begin late this year and is scheduled to be completed in fifteen to eighteen months.

Van Riper to Join Geigy

Dr. Hart E. Van Riper, who was responsible for the research program under which the Salk vaccine was developed, is resigning his position as medical director of the National Foundation for Infantile Paralysis to accept the position of medical director of Geigy Pharmaceuticals. He will take up his new duties on November 1.

4 Billion Arner Tablets a Yr.

Productive capacity of more than four billion medical tablets a year has been attained by the Aner Co., Dr. Niels C. Klendshoj, president, has announced. The new capacity, representing an increase of one and a half billion units, was made possible by the recently completed installation of eight new high-speed tabletting machines that can turn out six million tablets in a day.

Roerig Medical Director

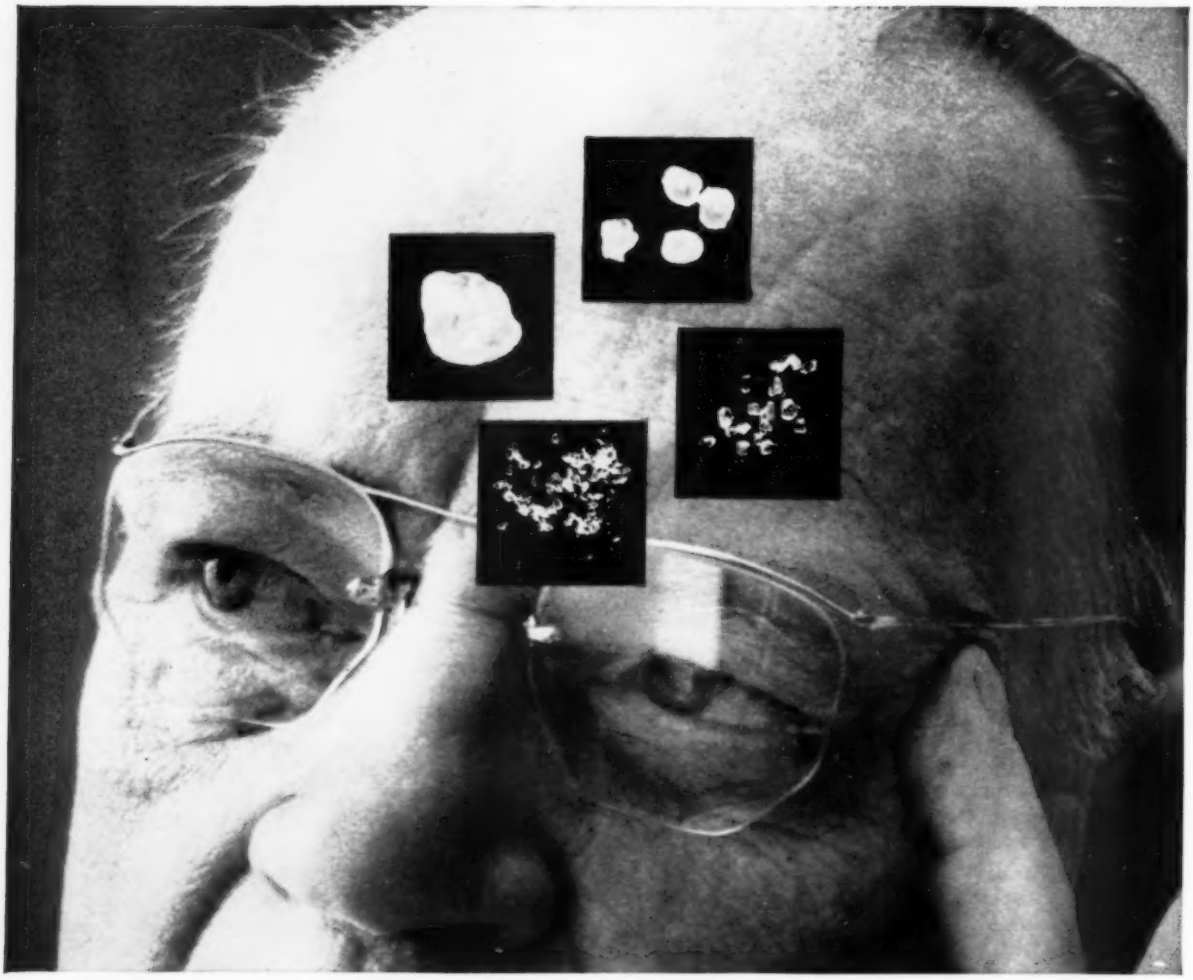
Dr. Jerome J. Van Gasse has been appointed medical director of J. B. Roerig and Company, succeeding Dr. Thomas A. Garrett, who resigned recently, it has been announced by Arthur C. Emelin, general manager. Dr. Van Gasse was director of the Department of Public Health in Jackson, Mich., prior to joining Roerig.

C. VIRGIL ST. JOHN

DR. HENRY R. KREIDER JR.

DR. JEROME J. VAN GASSE

DOW



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DOW

WILLEM LASTHUYSEN

Colgate-Palmolive Appoints

Jack V. Schurman has been promoted to division head in the research and development department of Colgate-Palmolive Company, according to an announcement by Dr. Thomas H. Vaughan, vice-president of the company. Dr. William G. Alsop succeeds Mr. Schurman as group leader in exploratory organic chemistry.

Dr. Vaughan also has announced the appointment of Willem Lasthuysen to the perfumery and essential oils division of the department and the appointments of Edgar M. Emery and Joseph W. Lyons to the department's analytical division.

Emery New Eng. Sales Rep

Tom W. Macy Jr. has been assigned as sales representative in the New England territory for the fatty acid sales department of Emery Industries, Inc., according to G. W. Boyd, sales manager of the department.

Mr. Macy will be responsible for the sale of Emery's complete line of stearic, oleic, hydrogenated, animal, vegetable, and castor oil fatty acids in the Massachusetts, Rhode Island, Connecticut, Maine, New Hampshire, Vermont, and upper New York state area.

Jean Despres, executive vice-president of Coty, Inc., reelected president of the Fragrance Foundation, addresses some 300 who attended the Foundation's Seventh Annual Convention on September 20 at the Savoy Plaza in New York. Seated, left to right, are Frazer V. Sinclair, publisher of Beauty Fashion, who was elected vice-president of the Foundation; H. Gregory Thomas, president of Chanel, Inc. and a director of the Foundation; and Edouard Cournand, president of Parfums-Lanvin, Inc. who was elected to serve as a director of the Foundation for a term of three years.

Dow Assigns Nuechterlein

Duane C. Nuechterlein has transferred from the market research staff of The Dow Chemical Company to the fine chemicals section of the company's Organic Chemical Sales, where he has been assigned to assist customers in the use of aromatic products.

Barnes' Chief Chemist

Louis P. Gerber, Ph.D., formerly with the Wm. S. Merrell Co., has been appointed chief chemist for S. O. Barnes & Son, Inc.

Asst. to Lederle Labs Dir.

Dr. James D. Gallagher has been appointed assistant to the director of laboratories, Research Division, American Cyanamid Company, at Lederle Laboratories, according to an announcement by K. H. Klipstein, general manager of the division. Dr. Gallagher will assist in the coordination of research and scientific activities at the Pearl River laboratories.

Mellon Inst. Exec. Dir.

Dr. Paul J. Flory, Professor of Chemistry and acting Chairman of the Department of Chemistry at Cornell University, has been chosen as Executive Director of Research for Mellon Institute. Dr. Flory will assume full time duties in his new position in the summer of 1957.

Stepan Appointments

D. H. Francis has been appointed director of engineering for the Stepan Chemical Company and a member of the company's executive committee, and William O. Ranky has been appointed director of laboratories.

J. T. Baker's Exec. V.P.

Dr. J. R. Stevens has been elected executive vice-president of the J. T. Baker Chemical Co., according to M. W. Smith, president. Dr. Stevens was formerly vice-president and operating manager of the company.

TOM W. MACY JR.

DR. JAMES D. GALLAGHER

DR. J. R. STEVENS

Florasynth LABORATORIES, INC.
NEW YORK 62, N. Y. • CHICAGO 6 • LOS ANGELES 21
St. Louis 2 • San Francisco • San Bernardino
COMSOLMEX S.A. Mexico 11, D.F.

Win Fatty Acid Awards

Professor George W. Preckshot of the University of Minnesota and Jay Nouri, research engineer in the technical development section of E. I. du Pont de Nemours' film plant in Buffalo, have won the 1956 Fatty Acid Award of $500, according to an announcement by the American Oil Chemists' Society.

The award is sponsored by the Fatty Acid Producers' Council, a division of the Association of American Soap and Glycerine Producers, Inc.

On Eaton Medical Staff

Dr. Myles R. Miller, in private practice for the past ten years in Allentown, Pa., has been appointed to the medical staff of Eaton Laboratories. He will be a member of the medical department, headed by Paul F. MacLeod, M.D., concentrating on clinical studies of the nitrofurans.

Shulton Appoints Anderson

Alastair B. W. Anderson has been appointed new product development manager for the Toiletries Division of Shulton, Inc., according to George L. Schultz, president. Prior to joining Shulton, Mr. Anderson was product manager for Whitehall Pharmacal Co. Before that, he was new products manager for Vick Chemical Co.

Zonite President

William L. Russell has been appointed president of the Zonite Division and vice-president of its parent company, Chemway Corporation, Charles T. Silloway, president of Chemway, has announced.

Prior to joining Chemway, Mr. Russell was director of advertising and public relations for Warner-Chilcott Laboratories.

WILLIAM L. RUSSELL

D. Mead Johnson, left, president of the Mead Johnson & Company Foundation, Inc., presents to W. Paul Briggs, executive director of the American Foundation for Pharmaceutical Education a check for $50,000, with which was established the E. Mead Johnson Memorial Fellowship.

This Is Leonard S. Baer

For the benefit of those who may have recently entered the drug or cosmetic fields, we regretfully explode what has the makings of an entertaining myth. There really is a Leonard S. Baer. This is not an alias for William Palmer.

In the September issue of DRUG AND COSMETIC INDUSTRY, there appeared on page 352 a news item reporting Mr. Baer's new assignment as Eastern sales manager of G. Barr and Co. But the photograph identified as that of Mr. Baer was of William Palmer, recently appointed sales representative in the

LEONARD S. BAER

New York Office of the Fine Chemicals Division of Shulton, Inc. The story reporting Mr. Palmer's appointment appeared on page 360 and was accompanied by a reverse print of Mr. Palmer's picture.

BULLETIN: Having pleaded guilty to a charge of mistakenly identifying photographs, the printer is now serving ten to fifteen years in the state prison.

E. Mead Johnson Fellowship

The Mead Johnson & Company Foundation, Inc. has given $50,000 to the American Foundation for Pharmaceutical Education, establishing the E. Mead Johnson Memorial Fellowship, which will be awarded each year to a graduate student selected by the AFPE Board of Grants.

Announcement of the fellowship was made jointly by D. Mead Johnson, president of the Mead Johnson Foundation, and W. Paul Briggs, executive director of the AFPE.

Corbet Is Vice-President

Frank A. Corbet, manager of chain store sales since 1955, has been elected a divisional vice-president of National Brands Division, it has been announced by James Hill Jr., chairman of the board of Sterling Drug, Inc.

Ciba Professional Rep

Thomas J. Cuddy has been appointed professional service representative in the Manhattan district of Ciba Pharmaceutical Products Inc., according to Vincent A. Burgher, sales vice-president.

Transfer Atlas Salesmen

Robert L. Herrman Jr., formerly in the product development department of Atlas Powder Company's Chemical Division, has been transferred to the Atlanta sales office. John J. DeGroot, formerly of the division's New York regional sales office, has been transferred to the Chicago region.

Ind. Sales Mgr. of van A-H

Raymond J. McKeefery has been appointed industrial sales manager of van Ameringen-Haebler, Inc., according to an announcement by Charles P. Walker Jr., president. Mr. McKeefery joined van Ameringen-Haebler in 1952 after a wide experience in the field of odor control.

RAYMOND J. McKEEFERY

WILLIAM K. EASTHAM

J. DAVID HAYDEN

Pepsodent Merch. Mgr.

William K. Eastham has been appointed manager of the Pepsodent Division and will be in charge of advertising and merchandising activities, it has been announced by T. E. Hicks, marketing vice-president of Pepsodent.

Promoted by Ames

Promotions in the sales department of the Ames Company, Inc. have been announced by George W. Orr Jr., executive vice-president.

Charles V. Owens, formerly sales promotion manager, has been promoted to the newly created position of field sales manager. J. Gilbert Thomas, formerly with Baxter Laboratories and Winthrop-Stearns is Ames' sales promotion manager.

Joseph E. Pinkham, formerly assistant to the general sales manager, has been promoted to the newly created position of sales office administrator. Roger Gosling, formerly a professional service representative has been appointed assistant sales office administrator.

John Paolo, formerly a professional service representative, has been promoted to the position of sales correspondent in the home office. William N. Sallee, formerly assistant to the general sales manager has been appointed Western district sales manager.

Evans Enlarges Bd. of Dir.

Two additional members, C. Edgar Chamberlain, vice-president and general manager of Sales Affiliates, Inc., and Ralph L. Evans Jr., vice-president for foreign operations of Evans Chemetics, Inc., have been elected to the board of directors of Evans Research and Development Corporation, according to Dr. Ralph L. Evans, chairman of the board of Evans Research.

Hayden Is DCAT Chrmn.

J. David Hayden, Eastern sales manager, R. P. Scherer Corp., was elected the 60th chairman of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, at the 66th annual meeting held at Pocono Manor, Penna., September 27-29.

Other officers elected were vice chairman, W. Boyd O'Connor, president, Ayerst Laboratories Div.; treasurer, Ralph A. Clark, vice president, J. T. Baker Chemical Co.; counsel, James G. Flanagan, vice-president, S. B. Penick & Company; and secretary, Helen L. Booth.

Mr. Hayden is the treasurer of the National Vitamin Foundation and formerly was associated with Sharpe & Dohme, Eli Lilly & Co., and the Upjohn Co.

New members elected to the executive committee were Paul J. Cardinal, vice president, Hoffmann-La Roche, Inc.; John A. Cawley, president, George W. Luft Co. Inc.; E. D. Bowes, New York manager, Kimble Glass Co.; Harrison S. Fraker, publisher, Topics Publishing Co.; Leon W. Miller, chemical sales manager, Barrett Div., Allied Chemical & Dye Corp.

Reelected to the executive committee were Fred G. Singer, E. I. duPont de Nemours & Co., Inc.; William W. Huisking, Chas. L. Huisking & Co., Inc.; Harold F. Cummings, Vitamerican Corp.; Stephen F. Urban, E. R. Squibb & Sons; Wm. J. Schieffelin, III, Schieffelin & Company; F. M. Schwemmer, White Laboratories, Inc.; James Day, Dow Chemical Co.; Griffin Crafts, J. W. Wilson Glass Co.; W. T. Halsted, Thos. Leeming & Co., Inc.; Louis E. Kalty, Progressive Drug Co.; George H. McGlynn, Magnus, Mabee & Reynard, Inc.; J. A. Singmaster, Jr., Monsanto Chemical Co.; and Charles E. Dutchess, M.D., consultant to drug and chemical industry.

Sydney N. Stokes was elected Section Representative to the Board of Directors, New York Board of Trade.

Gen. Wood on B W Board

Brig. Gen. John R. Wood, M.C. (Ret.), vice-president and director of research for Burroughs Wellcome & Co., (U.S.A.), Inc. has been elected to the board, according to William N. Creasy, president and chairman of the board.

Rushing to greet her mother, Mrs. Anna Ferrara, who is alighting from plane which brought her from Italy, is Miss Giovanna Ferrara whose knowledge of American history won her $16,000 on TV's "$64,000 Question." Mrs. Ferrara flew to New York to help her daughter decide whether to take the $16,000 or try for higher stakes. Miss Ferrara decided to rest on her laurels, take the $16,000 and return to her studies in Italy, where she is a student of chemistry at the University of Pavia. Watching the reunion of mother and daughter is John J. Powers Jr., senior vice-president of Chas. Pfizer & Co., Inc. Miss Ferrara's trip to the U. S. was co-sponsored by Pfizer, in whose laboratories she is doing research for her graduation thesis on antibiotics, and the United States Information Agency.

JOSEPH DAFFNER

Appointed by Lanolin Plus

Joseph Daffner's appointment to the newly created position of director of advertising and merchandising for Lanolin Plus has been announced by Dr. J. Schultz, president.

Lukens Retires

Reginald P. Lukens, production consultant and former vice-president for production of Merck & Co., Inc., retired October 1 after more than 40 years with the company.

Beginning his career with Merck in 1915 as a factory chemist, he advanced through several manufacturing positions and in 1948 became vice-president for production, continuing in that position until January 1953, when he was appointed production consultant.

A director of Merck & Co. Limited of Canada from 1946 to 1955, he has been president since 1939 of Experimental Plantations, Inc., a Merck subsidiary in Central America. He will continue in the latter capacity.

Meer Chicago Regional Mgr.

Ray Champlin, formerly of the New York office of Meer Corporation, has been appointed manager of the Chicago region.

HAROLD D. NAIDEAU

P.D. Opens Singapore Branch

Parke, Davis & Company has announced opening a sales promotion office in Singapore. W. H. Ramsay, assistant director of overseas operations, said the office "is the latest addition in the company's chain of offices and branches throughout the Far East."

He said the office, located on the eighth floor of the Asia Insurance Building and under the direction of Dr. H. Breitkreuz, "will supervise as well as facilitate medical service coverage through Thailand, Malaya, Vietnam, Cambodia, Laos, Indonesia, and Borneo."

Pfizer Moving Int. Div.

To house its International Division and other departments, Chas. Pfizer & Co., Inc. has leased six floors in a building under construction at 800 Second Avenue, New York. The long-term lease involved 75,000 square feet at an aggregate rental of about $6,000,000.

RUSSEL ROOKS

Elect Three Avon Execs

Russel Rooks has been elected executive vice-president and general manager by the board of directors of Avon Products, Inc., according to an announcement by John A. Ewald, president. Charles L. Bean was elected vice-president and general manager of Avon Products of Canada, Limited, and Harold D. Naideau has become vice-president and general manager of Avon's Latin American subsidiary, Mr. Ewald said.

Mr. Rooks joined Avon in 1926, was elected vice-president and general manager in 1944, became a director in 1952. Mr. Bean joined Avon in 1949, became general manager of Avon Products of Canada, Limited in 1949. Before joining Avon in 1953, Mr. Naideau had seventeen years experience in the Latin American market.

FRANK C. KENDALL

Kendall Heads Chiris Div.

Frank C. Kendall has been appointed head of the newly created Drug and Cosmetic Sales Division of Antoine Chiris Co. Inc., according to an announcement by F. E. Shoninger, president of Chiris. Mr. Kendall was formerly general purchasing agent for Warner-Hudnut Inc. and, prior to that, was in charge of various phases of production for that firm.

William F. Nichol, who has had many years experience in cosmetic production and research, has been in charge of perfumery research for cosmetics in the Chiris New York laboratory for the past few months, according to Mr. Shoninger, who, recently returned from a business trip to the West Coast, has also announced the appointment of Morgan Gaffney as West Coast representative for the firm.

Hahn Visits U.S. Dragoco

Rudolf Hahn, Latin American export manager of Dragoco, visited the U.S. division of the firm recently to discuss methods of more rapidly servicing South American countries. He had returned from a six-month tour of thirteen countries in Central and South America.

CHARLES L. BEAN

CROWN

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UNIVERSALLY RECOGNIZED FOR PACKAGING SUPERIORITY

Depend on Spra-Tainer for outstanding achievements in aerosol packaging. For example, in the last Chemical Specialties Manufacturers Association competition, Spra-Tainer-packaged products won first awards in no less than four classifications!

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C.S.M.A. First Award
Miscellaneous
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Lancome Appointments

Three appointments to the staff of Lancome Sales, Inc. have been announced by Armand Petitjean, president and directeur general. Roger Godart-Bargy, export manager of Lancome S.A. Paris, has been appointed vice-president; Frans J. H. Solleveld, formerly in charge of the Lancome agency in Holland, has been named sales manager; and Mme. Simone de Reyssi, who has been representing Lancome in Venezuela for the past six years, has been appointed assistant sales manager.

Ethicon Dedicates New Plant

Ethicon, Inc. dedicated on September 21 its new laboratories, home office, research center and what is reportedly the world's largest and most modern sutures production plant. Attending the ceremonies were New Jersey Gov. Robert B. Meyner; Gen. Robert Wood Johnson, chairman of the board of Johnson & Johnson; Philip Hofmann, vice-chairman of the board of Johnson & Johnson and chairman of the board of Ethicon; and the guest speaker, Dr. I. S. Ravdin, chairman of the Board of Regents of the American College of Surgeons.

Stokes Field Salesman

Milton A. Sanders, whose experience in the plastics molding business began in 1936, has joined the field sales staff of the Plastics Molding Equipment Division of F. J. Stokes Corporation and will work out of the New York office.

Stepan Sales Manager

E. J. Black has been appointed sales manager of the Stepan Chemical Company. He was formerly sales manager of Warwick Chemical Division of Sun Chemical Corporation and in sales and research at General Aniline and Film Corporation.

ANTONIE T. KNOPPERS

George H. McGlynn, vice-president and treasurer of Magnus, Mabee & Reynard, Inc., was honored at a luncheon in New York's India House September 20, his sixtieth birthday. MM&R executives and business and personal friends of Mr. McGlynn attended the affair. Seated, left to right, on far side of table are Robert B. Magnus, vice-president; Mr. McGlynn; Percy C. Magnus, president; and Joseph B. Magnus, vice-president. Mr. McGlynn is now in his thirty-seventh year of service with the company.

Lilly Research Associates

Harold Boaz, Ph.D., physical chemist, Robert N. Hull, Ph.D., bacteriologist and Albert Pohland, organic chemist, have been granted the title of research associate by Eli Lilly and Company in recognition of their contributions to research.

New Position for James Sharp

James H. Sharp has relinquished his duties as president of the Merck-Sharp & Dohme International Division to accept an appointment by the board of directors to a new vice-presidential post in Merck & Co., Inc., according to an announcement by John T. Connor, president of Merck & Co. Mr. Sharp will be responsible for developing plans for the growth and diversification of the business.

Replacing Mr. Sharp as head of the International Division is Antonie T. Knoppers, vice-president and general manager, who will be responsible for all the division's operations abroad, as well as export sales from the U.S.

JAMES H. SHARP

McNeil Buys VanZant

McNeil Laboratories, Inc. has acquired VanZant and Company, Ltd., Toronto, according to Henry S. McNeil, president of the Philadelphia firm. VanZant, manufacturer of the Vanza line as well as distributor of other companies' products, will continue to operate under its own name, Mr. McNeil said. Plans call for expansion of facilities and a large-scale intensification of efforts in the Dominion, he said.

Clinical Research Asst. Dir.

Dr. James M. Tuholski has been appointed assistant director of clinical research for Mead Johnson & Company, according to an announcement by Dr. Ben King Harned, vice-president for research.

Join Eaton Medical Staff

Drs. Myles R. Miller and Frank C. Waltz have joined the medical staff of Eaton Laboratories.

Before becoming a physician, Dr. Waltz was an atomic physicist, and, during World War II, he served as Naval Intelligence Liaison Officer to General Joseph W. "Vinegar Joe" Stilwell.

For the past ten years, Dr. Miller has been in private practice in Allentown, Pa.

Breon West Coast Sales Mgr.

William J. Briggs has been appointed regional sales manager on the West Coast for George A. Breon & Company, it has been announced by Charles L. Czermak, vice-president in charge of sales. Mr. Briggs has been serving as assistant sales manager of the company since 1955.

Vitamin salesman without portfolio

This is Frank Dowe. He handles our sales of vitamins A and E in the New York area. He's shopping for a brief case because his wife says that anybody who is anybody ought to carry one. So the salesman shows Frank one with a big pocket for samples. No samples in this business, says Frank. So the salesman shows him one with a big pocket for catalogs. No catalogs in this business, says Frank. So the salesman shows him one that looks dressy but doesn't hold anything. But Frank thinks he looks ok as he is and buys a handbag for his wife instead.

Frank doesn't need a brief case because he's selling service as much as a product. Back of him are a group of men who have devoted a large part of their working lives to doing basic research on vitamins A and E. Also a production capacity capable of meeting your day-to-day requirements from stock. If you ever need any help with formulation or utilization problems, or any information on our product, give us a call. Frank's office is on the 16th floor of the International Building of Rockefeller Center, and, although he's almost never there, his girl will give him the message. ***Distillation Products Industries,*** Rochester 3, N. Y.

leaders in research and production of vitamins A and E

DPi

Also... distilled monoglycerides... some 3500 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

Clarence Morgan Sales Mgr.

Donald S. Cushman has been appointed sales manager of Clarence Morgan, Inc., according to an announcement by W. C. Freeman, president. Mr. Cushman had been in charge of wax specialty sales of one of Clarence Morgan's principals, Strohmeyer & Arpe Company. Prior to that, he was vice-president in charge of sales for Innis Spieden & Co.

Richlyn Research-Quality Dir.

The appointment of Joseph F. Oakley as director of research and quality control for Richlyn Laboratories has been announced by Sidney Weinberg, president.

Sterling Drug Asst. Sec.

Arthur W. Jensen, general sales manager of Winthrop Laboratories, has been elected assistant secretary of Sterling Drug Inc., according to James Hill Jr., chairman of the board of Sterling.

Roubechez, Bruno Court Rep

Mrs. Jeanne Maurin, formerly manager of Les Parfums de Dana, Inc., is back in the United States after several months in Europe. She is now international representative for Bruno Court, Grasse, and Roubechez, Inc., New York. Her new activities will require that she spend time on both continents.

Perfume Sniffer Stand

Polak and Schwarz, Inc., has developed a new perfume sniffer stand which is being given to their accounts. It is said to be compact and practical, making an attractive appearance on the desk or in the laboratory.

Dragoco Sales Manager

Named sales manager of the United States Division of Dragoco, Inc. is Edward A. Bush.

Joins Emery Research Staff

Dr. Norman O. V. Sonntag has been appointed to the research staff of Emery Industries, Inc., R. C. Kadesch, director of research, has announced.

Witco Appoints Salesman

Cameron J. Duff's appointment to the sales force of the Witco Chemical Company has been announced by Jerome S. Harrison, vice-president for the midwest region. Mr. Duff will be headquartered in the Chicago office.

ROBERT J. FOLEY

B-M Sales Promotion Dir.

Robert J. Foley has been appointed director of sales promotion for Bristol-Myers Products Division, according to an announcement by E. Lloyd Bernegger, executive vice-president of the division.

Kolmar New England Rep

Kolmar Laboratories and Kolmar Cosmetic Specialties have announced the appointment of Gilbert McNamara as New England States representative. Mr. McNamara visited Milwaukee the week of September 17 to become acquainted with Kolmar's products and personnel.

Gair Plans Grand Rapids Plant

Robert Gair Company, Inc. has bought a nine-acre industrial site in Grand Rapids and is preparing to erect a modern carton plant to house the Grand Rapids branch of its American Coating Mills Division.

Diversified Drug Mkt. Dir.

Jerry Wittenberg has been appointed director of marketing for Diversified Drug Associates, Morton Edell, president, has announced.

JERRY WITTENBERG

Robert Arcularius

Robert Arcularius, sales representative for Alexandre de Markoff and known throughout the cosmetic industry for more than sixty years, died September 14.

Dr. Benjamin Minge Duggar

Dr. Benjamin Minge Duggar, 84, discoverer of Aureomycin chlortetracycline, died September 10 at Grace Memorial Hospital, New Haven. After two years of research, in which he tested thousands of strains of actinomycetes, Dr. Duggar, made his discovery in 1945 at Lederle Laboratories.

Dr. Duggar was born in Gallion, Ala., 1872, the son of a doctor. He attended private school and studied with tutors. After some time at the University of Alabama, he went to Mississippi State College to study the biological sciences.

In addition to four honorary doctorate degrees, he had a B.S. from Mississippi A. & M College; M.S. from Alabama Polytechnic Institute; B.A. and M.A. from Harvard; and a doctor's degree from Cornell. Besides studying in Europe, he taught at Radcliffe, Harvard, Cornell, University of Missouri, Washington University in St. Louis, and the University of Wisconsin, where he was professor Emeritus.

He is survived by his wife, Mrs. Elsie Duggar; four daughters, Mrs. Charles Plunkett, Mrs. John F. Adams, Mrs. David Saunders, Miss Gene Duggar; two sons, Benjamin M. Duggar Jr. and George D.; and thirteen grandchildren.

Leon L. Klaus

Leon L. Klaus, 51, manager of public information in the public relations department of the Armstrong Cork Company, died September 23 after an illness of two weeks.

Mr. Klaus, whose newspaper career began in 1925, joined Armstrong in 1943 as manager of the company's news bureau. In June of this year he was named manager of public information in the company's newly organized public relations department.

He is survived by his wife, two children, a brother and a sister.

Fred E. Rathburn

Fred E. Rathburn, 73, president of the Olive Tablet Company, Columbus, died suddenly September 16. He was a past president of the Proprietary Association. Surviving are a brother, Charles A. Rathburn, and a sister, Mrs. Marie Ruddel, both of Gallipolis, Ohio.

Baker Fine Chemicals...one of the

"precise standards make for easier processing"

There are many reasons why Lederle Laboratories—known for their many contributions to the advancement of human and veterinary medicine—insist upon chemicals with precise standards to use as either ingredients or raw materials.

Read what they say—how chemical purity and physical uniformity assure easy, efficient processing of pharmaceutical specialties and antibiotics, at favorable production costs.

It is natural that Lederle should depend upon Baker for many of the fine chemicals they use. For years, Baker has supplied leading drug and pharmaceutical companies with "purity by the ton"—to help protect their precious trademarks.

Dependability—chemical purity and physical uniformity, lot after lot—coupled with Baker highly personalized service is a combination hard to beat.

If you are planning to market a new product, or would like the safeguard of Baker quality for an established product, may we talk to you? Phone Phillipsburg 5-2151 or write: J. T. Baker Chemical Co., *Executive Offices and Plant,* Phillipsburg, New Jersey.

PURITY BY THE TON TO MAKE

Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Merger Madness

In every industry throughout the country there is an epidemic of mergers. In most of the big firms with which I work, there is one individual whose sole job it is to investigate merger possibilities. Among smaller firms there is a wide-spread belief that, to compete against the big outfits successfully in research as well as in marketing, it is necessary to get big fast and the fastest way to do it is by merger. The presidents of almost every firm in the country are incessantly solicited by merger hounds on the hunt for likely companies.

Our tax laws are so ridiculous that big, profitable corporations advertise continually in the financial papers for companies that have had substantial losses. The absorption of such companies reduces the tax paid by the absorbing company, which hopes, by revitalization of the absorbed company, to make a profitable asset out of it eventually.

Many of the mergers between utterly dissimilar companies are ridiculous excepting when they are taken over by a holding company which confines its control to financial management and does not interfere with operational management of the individual companies. I emphasize this point because every industry has its own economic orbit, history, marketing psychology and techniques, research and development problems, political and legal problems. Some, like the pharmaceutical industry, have their own peculiar production and engineering problems. The pharmaceutical industry learned to its great cost how true this statement is, when during the thirties, a number of pharmaceutical firms absorbed cosmetic companies and tried to run them operationally as well as financially. Without exception they all took a hell of a licking.

But there is something to be said for the merger of a group of small companies into a large holding company, when that company confines itself to financial management, because the small units of the group have access to working capital for research and other purposes, which it would take them years to acquire by the normal process of growth through plowing back profits. The iniquitous tax laws have made this process exceedingly difficult for the small company, especially when it is owned by a group of unrelated stockholders, who inevitably insist upon the payment of reasonable dividends and who will oppose ventures that might dilute their capital or preclude the payment of regular dividends. It is the one great virtue of family owned companies that they can take what risks they like without having to worry about the effect upon outside stockholders.

Mergers are all right when they increase the strength of a firm in a particular field or in a related field. The pattern followed by Union Carbide is a sensible example of the manner in which a company can become large and powerful through mergers in its own and related fields. Starting in the early years of this century, this company was formed to make aluminum with an electric furnace. They didn't succeed in making aluminum but they did succeed in making calcium carbide, from which, when water is added, acetylene gas is produced. This was called Prestolite and was used in the lamps of all early automobiles and bicycles.

When acetylene gas is burned with oxygen added, a very hot flame is produced which will cut metals. So Union Carbide began to produce implements for metal cutting industries. Their experience with electric furnaces led the way into the production of ferroalloys for high strength steels and stainless steel. Eventually the same experience led them into the production of the new metals such as titanium.

And thus Carbide became a great, rich, diversified company without ever having left its own orbit of experience as far as I know. DuPont's collosal and diversified expansion came, with few exceptions, out of

its laboratories and many, if not all, of the exceptions were in the form of acquisitions to assure its material supplies or to strengthen its position in markets into which laboratory discoveries had led them.

But when a company buys up a textile outfit, a chain of retail stores, a trucking line, a boat yard or any other heterogenious collection of unrelated firms as so many have done, it is headed for trouble.

Management is the key to the success or failure of any merger. Of all phases of management, financial management is the easiest to acquire. Money is money and it makes no difference whether it is invested in a ship yard or a string of beauty shops. But operational management is totally different. A management team that could successfully launch a thousand ships would certainly fall flat on its face trying to run a chain of beauty shops. Operational management must be trained and developed within an industry or within a group of closely related industries. A splendid performance in one industry is never a guarantee of success in another.

I am not saying, however, that a manager trained to operate in one industry can never switch to a totally dissimilar one. I have known top flight executives, who came out of foreign industries and made spectacular successes in dissimilar ones. But such men are exceptional. They have the ability to learn very fast and they absorb what they learn. And they are smart enough to surround themselves with men who do know the industry, upon whom they can lean even as they direct them. It must be said also than an occasional injection of good foreign blood into any industry can be very profitable and stimulating. Also it must be admitted that phases of management are quite similar in all industries. Personnel management for example. Although I would not guarantee that a personnel man who had had an exceptional record handling huskies in a steel mill would do as well handling a flock of hens in a cosmetic factory.

Good management is difficult to develop. This takes talent and time even within your own company. And it's a damned sight harder to find even within your own industry if you can't take the time to develop it. Despite a manager's past record and despite the most searching inquiry, you can never be sure how the guy will perform until you have watched him in action. It is for this reason that corporations seeking to acquire others have an increasing tendency to look into the management record of the prospective acquisition, and, they are very careful to assure themselves that the management team will remain after the acquisition, or at least long enough to train their own team.

One other justification for mergers must be mentioned, and this, too, is caused by our infamous tax laws, and that is the necessity of acquiring listed stock for unlisted stock in the case of family owned corporations. Uncle Sam is completely ruthless in collecting inheritance taxes and many estates have been dissipated and companies ruined, because Uncle Sam put up large blocks of unlisted stock at auction in order to collect inheritance taxes.

Mechanized Diagnosis

This is to announce that my diagnosis machine is already obsolete. The trend toward clinical diagnosis killed it. So I have decided to mechanize clinical diagnosis. (Mayo Clinic, please take notice.) I intend to conveyorize diagnosis and surgery.

Imagine, if you will, a white tiled room, brilliantly lighted, containing a wide, white rubber belt about a quarter of a mile long. On either side of the belt are white-robed doctors with skull caps, masks and rubber gloves. Some of them have special equipment handy and a few have assistant nurses (they're the lucky ones).

The incoming patients are received in a room at the head of the belt and are stripped. Those who need it are given a shower and sprayed with disinfectant. Then they are dried off with a blast of hot air and are picked up by a couple of orderlies and fed, feet first, on the conveyor belt. As the patient passes along on the belt, the doctors go to work on him or her from opposite sides at the same time.

At the first station one doctor examines the patient's left foot while his opposite partner examines the right. If they find anything unusual like bunions or corns or merely stink, they push a button which communicates the fact or facts to an electronic data processing machine.

At the second station another team of doctors take over; one looks into the patient's left eye with a light and his opposite partner does the same thing with the right eye.

At the third station one doctor taps the right chest with a stethoscope while his partner taps the left. This has to be done with a fair degree of rapidity, because the belt moves at a speed of sixty feet per minute. Hence the stethoscope specialists look very busy. Like tap dancers.

At the fourth station the patient's belly is kneaded by a pair of doctors. If they can't make him holler his belly is all right. Presumably.

At the next station a pair of grabs come down automatically and seize the patient's ankles and hoist them up. When the legs are at a right angle to the body and spread out, a pair of doctors perform examinations which shall not be mentioned for reasons of delicacy.

The next station is the sampling station. (In medical practice as in pharmaceutical manufacture, it is necessary to take control samples to make sure the product is right.) So the doctors jab needles into the patient and draw samples of spinal fluid and blood. Another takes saliva samples.

Still others attach vacuum apparatus similar to those used for milking cows and samples of urine and feces are extracted. These samples are collected in vials which are shot through vacuum tubes to an

electronic analysis laboratory, which communicates its findings in a matter of seconds to the data processing machine.

There are many other specialized stations of course. One records body temperatures; one records reflexes; another measures respirations; another records pulse rate; still another blood pressure. There is of course an EKG station, a flouroscope station and X-ray station.

By the time the patient has passed through the diagnostic stations, the data processing machine has determined what's wrong with him. Thereafter, the conveyor belt has a series of switches or side tracks for surgery. Each is marked with its particular specialty: Appendectomy, gall bladder, ulcers, cancer, brain tumor, pregnancy, fallen arches, fistula, etc.

As the patient is shunted down one or the other of these lines he is met by a group of surgical specialists. First of course he passes through an anesthesia hood and comes out, to all intents and purposes, deader than a mackerel. The first surgeon takes a swipe at the patient with a scalpel (much like those artists in the slaughter houses in Chicago), and he lays the peritoneum open as bare as a baby's bottom without a scratch on it. The second surgeon along the conveyor belt is a specialist in slicing peritoneums. If he cuts too deeply and slices an intestine an electronic recorder cries out "Foul Ball!" This counts against the specialist and, in the more ethical institutions, they would punish him by putting him farther back on the line, tapping knee caps. (I think that is Station number six just beyond the interns.)

I won't go through all the procedure of surgery; it's a bit smelly. Let's go back to the main belt. The patients who are not surgical cases are diverted off the main belt into lateral conveyors labeled according to the patient's disease, such as milk leg, pimples or piles; scarlet fever, anthrax or botulism. There is of course a side track conveyor for patients whose ailments the machine cannot diagnose. This is called Siberia. A big S on a patient's ticket is equivalent to DOA on an ambulance case. An S patient is given his clothes back if the doctors can find them and is told to go to Keokuk, Iowa for his health.

A patient who is too far gone to do anything about is allowed to ride through to the end of the conveyor belt, where he is met by a pair of morticians who measure him for a wooden overcoat. If the patient is resigned he can get the gas treatment for a slight extra fee. Also he can get a discount on the wooden overcoat, as morticians like immediate rather than future business. They don't believe in the old saying, "Live horse and you'll get grass." At this end of the belt the legal beagles hover about to write wills for a fee and a percentage of estates. Also the insurance blokes, who in times of extremity are always eager to settle insurance claims for ten per cent of what they are worth. Finally there are the tomb stone makers ready with their latest models to exhibit to the patients who can afford to pay for them. Those who die on the surgery belts are shunted down chutes directly into mortuary wagons or into the crematory.

I am sure you will agree that what I have outlined is a great contribution to medicine and surgery. It's so simple—this mechanization! I cannot understand why the medical profession have not called upon the engineers before.

Sales Training and the Devil's Advocate

I have attended many sales meetings and listened to canned pep talks by half canned salesmanagers. I have sat in sales training meetings and listened to a lot of tripe about the technique of selling. I must confess that in many cases I have been extremely bored listening to a lot of stereotyped hog wash.

I have often wondered why salesmanagers generally don't use the "devil's advocate" in training salesmen and especially detail men. (The devil's advocate is a member of the College of Cardinals in Rome, who, when a person is considered for canonization as a saint, is appointed to disprove if he can the spiritual qualities of the candidate.)

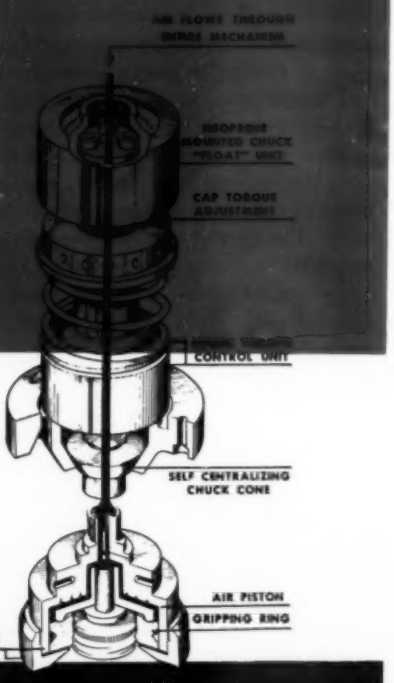
The devil's advocate I have in mind would be a retired doctor—the most arbitrary and cantankerous one could find. Every long-experienced detail man has a list of SOB's. I'd pay him a good fee and set him up with an office, complete with acting patients, reception room and nurse. I'd pick a good tough, hard boiled nurse—an old battle axe. Then around the staged set-up I'd have an enclosure of one-way glass so that all my salesmen could observe and hear the proceedings. Everybody would be provided with a note pad.

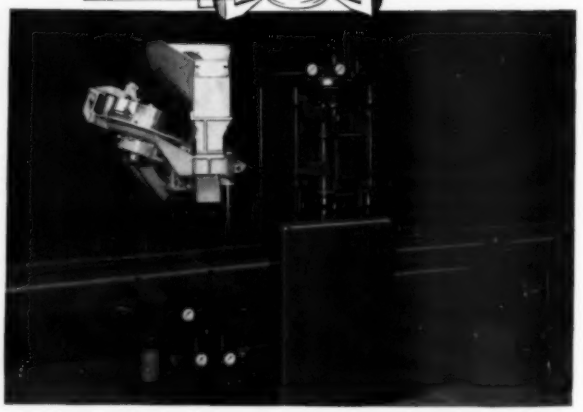
Then I would send the sales candidate in with a product to sell the doctor. His first problem would be to get past the nurse and a roomful of waiting patients. He'd be like a fish in a bowl; everything he did would be under observation and recorded for later constructive criticism. A salesman who has been trained to sell people who don't like his looks, manners or personality; who don't like his company and don't want any of its products, should have no trouble dealing with average prospects.

In my time I have dealt with thousands of salesmen —mostly equipment salesmen of course, and here are some of the things I don't like, which I think reflect defective sales training:

I don't like a salesman who is servile. I don't like—and don't trust—a salesman who flatters me. I don't like a salesman whose English is bad unless he has a foreign accent. I don't like a salesman who has dirty hands, dirty teeth, fingernails or shoes. I don't like a salesman whose shoes are too worn. I don't like a salesman who is sloppy fat and smells of sweat. I don't like a salesman who has a soiled or wilted collar or uses a soiled or crumpled handkerchief. I don't like a salesman whose suit looks as if he slept in it.

ALL IN A DAY'S WORK for PNEUMACAP





AMAZING ADAPTABILITY COUPLED WITH THE GENTLEST FEED AND TURN-ON ACTION KNOWN

Right from the time the caps are delivered to the hopper of the Sterling Cap Feeder on the PNEUMACAP, to the moment they're turned onto the container, they're handled with kid gloves. There's no churning or grinding in the feeding operation. Caps "dribble" easily into position, on call from the machine. No jamming to cause scratching or breakage.

Then the amazing air chuck takes over. Air pressure firmly squeezes the neoprene doughnut around the cap. Exactly conforming to any turn-on closure—metal, knurled, smooth, molded—it holds the cap in its no-scratch, no-slip grip. Self aligning full-floating action allows chuck and cap to "find" the container top. Built-in four speed selective drive permits choice of proper speed to suit particular cap involved.

Send for Bulletin No. 128 for complete details of this truly extraordinary capping machine. Available in two, four, six or eight head models.

PNEUMATIC SCALE CORP., LTD., 70 Newport Ave., Quincy 71, Mass. *Also: New York; Chicago; Dallas; San Francisco; Los Angeles; Seattle; Leeds, England. Canadian Division: Delamere & Williams Company, Ltd., Toronto.*

★ PNEUMATIC

Packaging and Bottling Equipment

I don't like a salesman who is too familiar. I don't like a salesman who laughs at something that isn't really funny. I don't like a salesman who interrupts or flatly contradicts me. I don't like a salesman with a defensive or a negative attitude. I don't like a salesman who is too assertive or not assertive enough. I don't like a salesman who always blames the home office. I don't like a salesman who doesn't know his line and can't answer simple questions. I don't like a salesman who talks too fast and too much. I don't like a salesman with bad breath or a whiskey breath. I don't like improperly trained salesmen.

Contract Manufacture

The economic importance of contract manufacturers and packagers, like Strong Cobb, Private Brands Incorporated, and Ivers-Lee, is increasing very rapidly as both large and small firms realize that it is often cheaper and faster to employ such firms than it is to manufacture and package many items themselves. This is particularly true of seasonal items, sample campaigns, export items, and particularly new items.

No one can tell whether a new item will go over with a bang or dribble out with a flop. In any case small test runs must be made which the average large plant is not geared to handle. The contract manufacturer like Strong Cobb, which is equipped to make almost every item in the drug and cosmetic range, can take over initial manufacture and distribution.

Samples are a headache to the average plant manager unless his plant is equipped to handle them. Very few plants are, because sampling campaigns come at periodic intervals and thus preclude a permanent set up for handling them economically.

Many firms are striving to break into the export market. Since export markets require different package sizes, different labels and sometimes a multiplicity of them, the production and packaging of export items is, in most plants, a damned nuisance. Contract firms can take the whole bloody headache off your hands.

With labor becoming more difficult to get especially for temporary seasonal jobs, the contract manufacturer offers ideal facilities for handling peak loads.

Last but not least important is the fact that with steadily increasing labor costs, many small manufacturers are finding out that it does not pay to operate their own manufacturing and packaging facilities at all.

Before the war when business in the pharmaceutical and cosmetic industries was not booming as it is now, many manufacturers tried to make everything they could regardless of whether or not the practice was economical, simply to "absorb overhead." (What foolishness is everywhere justified by a reference to that silly phrase!) But business is booming now and the contract manufacturer can be enormously helpful by taking off your hands all the small run items which, for one reason or another, you cannot discontinue. All plant managers would like to discontinue the items they cannot handle in substantial runs, but for reasons beyond their control, they are stuck with them. Such items could very properly and profitably be turned over to contract manufacturers like Strong Cobb who are equipped with facilities, both production and laboratory, to handle them.

Tranquilizers

Freud forecast the possibility of drugs which would, by chemical or electro-chemical means, affect the operation of the brain and the nervous system. Aldous Huxley went him one better in "Brave New World"—that picture of the future when babies are produced, not by old fashioned sexual intercourse, but in scientifically controlled bottle cultures. How revolting! Huxley's bottle babies are scientifically reared and conditioned to their pre-determined lot in life, and are fed a wonderful new drug called "Soma." Soma is a tranquilizer—a super Miltown—that not only tranquilizes the citizens of that distant, regulated future but it makes them love their work and their stations in life and eliminates all desire or ambition for anything better. I don't mind Soma. But I shudder at the thought of conception in a bottle. Many of us were conceived as the result of a bout with a bottle. But not *in* one. Gor blimey! Guess I', old fashioned.

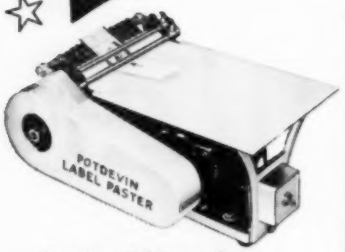
But the tranquilzers do stir the imagination a bit. For a long time we have been messing about with some powerful drugs which exert some extraordinary effects upon the mind and the nervous system. For centuries we've had alcohol and narcotics. Now we've got scopolamine, lysergic acid, mescalin, benzedrine, barbiturates, peyote, datura, agaric, ololiuqui; God knows how many other botanical and chemical narcotics, analgesics, hypnotics and steroids. What makes one shudder is that we use all these drugs empirically without knowing *how* they work. With all the tons of it we consume every year, we still don't know how the common drug, aspirin, works. We are satisfied that it works.

Now we have antagonists. The Aspro-Nicholas Research Institute in Australia have come up with a new drug class—antagonists, trade marked Daptazole and Megimide. These drugs eliminate the side effects of barbiturates and narcotics. I know of a case in Florida where a girl was in coma for twenty-four hours from an over-dose of barbiturates and was brought out of it with no apparent ill effects with a shot of Megimide. Cancer patients in extremities of pain and even suffering from asthma as well have been given colossal doses of morphine with daptazole without any ill effects. The importance of this new drug lies in the fact that it does not interfere with the analgesic effect of morphine. Even a small dose of morphine will kill a cancer patient who also happens to be suffering from asthma.

It's a wonderful world of narcotics, hypnotics, tran-

☆FREE TRIAL OFFER!

See for yourself how POTDEVIN LABELING MACHINES Save time, increase efficiency!

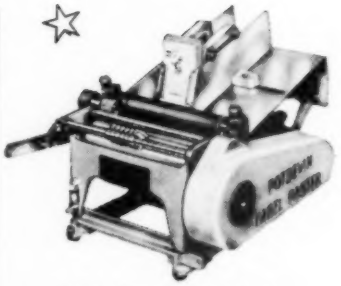


Hand and Motor Driven

LABEL PASTERS

Handles any shape label without adjustment. Dial control regulates paste flow—no excess. Cuts stock loss. One machine can supply several operators. Available in 6" and 8½" models.

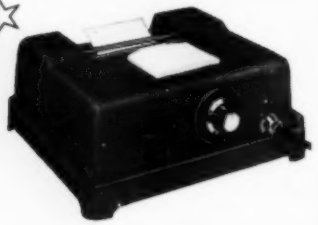
POTDEVIN has been serving the labeling needs of the Drug and Cosmetic manufacturers for over 60 years. Hundreds of plants use POTDEVINS for short runs or for auxiliary use so as not to disturb mass production set-ups. If you still use hand labeling for short runs investigate POTDEVIN today! POTDEVIN will send you a labeling machine on ☆FREE TRIAL. This is the most convincing way to see for yourself how great a time and money-saver a **POTDEVIN** can be.



Semi-Automatic Feed

LABEL PASTERS

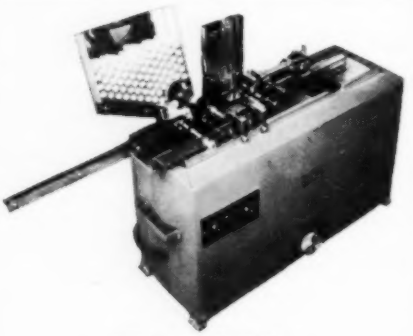
Quickly adjustable to all shapes of labels from ½" to 7½" wide. Dial regulates paste flow. Speeds-up production 50%.



Thermoplastic Label

ACTIVATORS

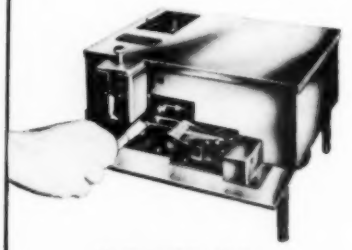
Activates delayed tack, pre-coated labels quickly and evenly. Permanent labeling on glass, metal, plastic, fabric, etc. Thermoplastic heating control. Available in 6" and 12" widths, motor driven.



Vial and Ampule

LABELER and CODER

Completely automatic labeling and coding of vials and ampules. Available in 1, 2, 3, 5 and 10 c.c. sizes.



Collapsible Tube

LABELERS

Applies up to 32 slip labels per minute to collapsible tubes. Automatically forms and ejects label on tube. Machines available for ⅛, ¼, ½ and 1 oz. tubes.

POTDEVIN MACHINE CO.

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quillizers, antagonists, artificial insemination, truth serums and bottle babies. But I still like corned beef and cabbage.

What's New

Canned Cooling: For air conditioning a limited area —such as a "comfort" zone around a person at a desk, table, or in an auto—the American Dryer Corp. of Philadelphia is marketing a 14-pound portable air conditioner the size and shape of a table radio. The conditioner manufactures a cooling breeze by forcing air over two cans of a pre-frozen (in your refrigerator) refrigerant. Price: $19.95.

Electrical Groomer: You can condition your scalp and groom your hair without arm-tiring brushing with an electric hairbrush made by the Cory Corp. of Chicago. The brush's four rows of nylon bristles move back and forth at the rate of 5,000 strokes a minute (vs. 30 to 50 strokes with hand brush), performing in three minutes the work of twenty minutes of hand-brushing. Price: $29.95.

Reaching the Doctor

Millions of dollars are spent annually in direct mail to doctors and the major part of it is wasted because too much of it is stereotyped, repetitive and uninteresting. Most of the stuff winds up in the doctor's waste basket.

I have suggested to my clients that more selective, smaller mailings would be more effective especially if the piece sent to the doctor is in some way unusual, useful and interesting, or is something he will play with. Among the ideas I have suggested are as follows:

Years ago I suggested detailing and sampling by telegraph because everybody will read a telegram and arrangements can be made with the telegraph company to deliver telegrams only during office hours. They also will deliver samples too. But this idea got scalded because a jackass, when penicillin came off the wartime restriction list, telegraphed virtually every doctor in the country with no limitations as to delivery time. The result was doctors were hauled out of bed, away from cocktail parties and off golf courses. Hence, hell to pay!

Another idea was to use a letterhead with a check form printed at the top and enclosed in a window envelope so that the pseudo check showed through. This idea was picked up by an insurance company and used effectively. At least people opened it.

Riffle books were suggested to one client who turned the suggestion down because of cost. We used to have riffle books of all sorts when I was a kid. By riffling the pages rapidly one saw in effect a motion picture of a ball player stepping up to the plate and knocking out a home run. Before movies these books were very popular. They were about two inches by three, and one quarter inch thick, containing about twenty-five or thirty pages of stiff paper, each bearing a photograph.

Doctors would play with riffle books depicting, for example, a simple operation or the injection of your product. Undoubtedly he gives them to his kids to play with too. It would be a good thing to have your ad in his home. Better than the waste basket. Riffle books—a series of them—depicting golf shots by famous pros would go over big with the golfers among doctors.

A few really worthwhile gifts to doctors who play active roles in county medical societies would, if very thoughtfully conceived, cause comment at society meetings.

Smaller mailings, smartly conceived are better, it seems to me, than the huge tonnage we send out every year.

Colton Tandem Tube Filling Unit

A new Model 185 Quad Tandem automatic filling unit that unloads, fills registers, cleans, folds, crimps and ejects tooth paste tubes at the rate of 300 tubes per minute is now available from Arthur Colton Company, 3400 E. Lafayette, Detroit 7. This production rate has been achieved by putting two new filling machines, each of which fill four tubes at a time, in a tandem arrangement in which their operations are synchronized with a pushbutton control panel and a conveyor arrangement. This tandem arrangement enables a tube filler unit to deliver filled tubes at the production rate of a standard cartoning machine.

Minimum maintenance costs are provided by this filling machine because each filler can be run independently by adjusting carton conveyor index spacing. Cycle indicators on each filler, used in conjunction with charts supplied with the unit, indicate the operating condition of each machine function at the time of shutdown.

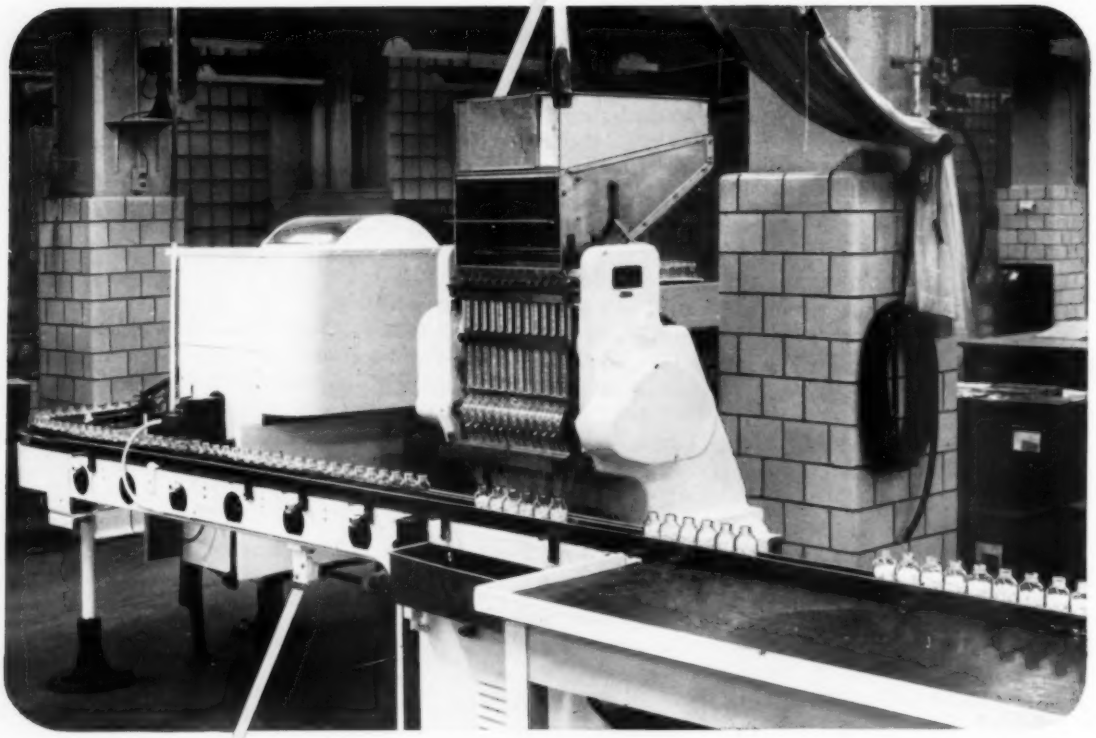
Cartons having rows of eight empty tube and cap assemblies are directed to a flight conveyor on the first tube filler by a belt conveyor. Eight tubes at a time are removed from alternate carton rows in the first filler and deposited in a tube holder by a unique spreader mechanism that respaces the tubes for loading into tube holders.

The semi-unloaded carton is then transferred by another belt conveyor to a flight conveyor on the second machine. In this machine, the remaining alternate rows of tubes are similarly unloaded and deposited in a tube holder conveyor. Empty cartons from the second filler are deposited on a factory conveyor.

In the tube holders on each machine, 150 tubes per minute are automatically registered with an electric eye, air-jet and vacuum cleaned, preclosed and filled four-at-a-time, double folded, crimped and ejected into a discharge chute.

The Colton Model 185 Quad Tandem tube filler occupies a floor space about 15-ft. long by 6½-ft. wide.

again the choice is US



Model TBS Automatic Fills 160 Empirin 25-Tablet Bottles in a minute at Burroughs Wellcome!

Burroughs Wellcome & Co. of Tuckahoe, New York, uses several Model TBS Automatic Tablet Filling and Counting Machines to package their well-known Empirin Tablets. The company uses several bottle sizes—and finds that Model TBS machines are ideal for many operations because they are easy to change over for different counts and containers. The machines' specially designed tablet handling mechanism virtually eliminates breakage or powdering.

Model TBS Automatic Tablet Filling Machine in the 12 chute model will fill bottles, cartons or cans with any desired number of pills, capsules or tablets—counting and inserting them at rates of 160 per minute on 25 count or less,and up to 100 per minute on larger count containers.

Model TBS machines are available with many modifications to suit either mass production packaging of a single pharmaceutical tablet or speed packaging of a varied line of products. For complete details, write **US.**

PACKAGING MACHINERY MANUFACTURERS INSTITUTE PMMI MEMBER

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Compounder's Corner

Lanolin Shampoo Patent

This invention by J. R. Verblen, U. S. Patent 2,756,178, relates to a cream-type shampoo in which a high percentage of lanolin is incorporated. After washing and rinsing the hair, there remains a residual amount of lanolin homogeneously distributed throughout the entire hair to act as a hair dressing so that the use of external dressings is obviated.

The major problem in washing hair with any detergent is not merely in removing dirt and foreign material from the hair and scalp. This objective can be accomplished by the use of almost any type of wetting or foaming agent, such as ordinary soap or a synthetic detergent, foaming or non-foaming.

The real problem is to wash hair and yet have it left in a manageable condition, since washing removes not only dirt but practically all of the natural oily substances. For example, most persons, after shampooing, find their hair to be extremely dry and fluffy to the extent that there is required an application of some type of hair dressing, generally an oily substance which tends to cause the individual hairs to coalesce and thereby effect a weighting down which keeps the hair down closer to the scalp.

Lanolin itself is an extremely good hair dressing but because of its physical nature is difficult to apply as such into the hair.

The problem is to get enough lanolin into the hair and scalp after washing and rinsing without being messy.

The invention is designed to permit the introduction of a large amount of lanolin into a shampoo. Enough of the shampoo is used to wash the hair so that at least five to 10 grams of lanolin actually is applied to the head. On lathering with water the lanolin is homogeneously distributed throughout the entire head of hair and each strand is covered with lather containing lanolin. The hair is rinsed in the usual way and it is found that there remains evenly distributed on the hair an amount of lanolin equal to about one fifth of the original amount introduced.

Most modern types of synthetic detergent shampoos are limited to the incorporation of lanolin to about one per cent which is hardly enough to be of any significant value.

Since lanolin like many other fats interferes with lather and foam, it has been in fact impossible to introduce an adequate amount of lanolin in a shampoo and yet give good lather.

The invention uses large amounts of lanolin (15 to 50 per cent) with a lathering agent such as a salt of a sulfated lauryl alcohol, without inhibiting the action of the lathering agent. This is accomplished by the introduction into the formulation of a blocking agent which greatly retards the inhibition of lanolin against a lathering agent. Such agents are high molecular weight fatty acid mono isopropanol amides.

These amides act as dispersing and coupling agents for lanolin and similar fats and protect the physical contact of the lanolin and lathering agent to such an extent that the lathering by the addition of water proceeds as if the lanolin were not present at all.

The invention for the creation of a shampoo having a large lanolin content consists of taking a lathering agent, and introducing a high molecular weight fatty acid amide from C12 to C40 so that a substantial amount of lanolin may be added to form the shampoo. Since fat generally destroys foam, and a lathering agent and lanolin are ordinarily incompatible, the introduction of the high molecular weight fatty acid amide from C12 to C40 acts as a blocking agent in that it blocks the lanolin from destroying the foaming character of the lathering agent. On the other hand it might be considered a coupling agent in the sense that it permits the two incompatibles to be brought together and still remain functionable.

In the invention any suitable lathering or foaming agent, or detergent may be used but sodium lauryl sulfate is preferred. The preferred blocking or coupling agent is stearic mono isopropanol amide. The coupling or blocking agent is substantially 70 per cent by weight of the amount of lanolin used.

An example of the formulation is as follows:

	Parts by weight
Stearic monoisopropanol amide	15
Ethyl alcohol	10
Lanolin	20
Sodium lauryl sulfate	15
Water	1

Ethyl alcohol is used as a viscosity control. It keeps the product fluid in cold weather and is an anti-solidifying agent. It may be eliminated should such control be not necessary.

Water makes up the balance of the product, but it may be eliminated without changing the product's functions or results.

The parts of the product by weight may vary as follows, but the stearic mono isopropanol amide must remain substantially 70 per cent of the amount of the lanolin:

	Parts
Stearic mono isopropanol amide	10 to 35
Ethyl alcohol	6 to 22
Lanolin	15 to 50
Sodium lauryl sulfate	15 to 40
Water	0 to 51

Lather Creams

According to its composition and its appearance, lathering shaving cream belongs to the class of soap known as soft soap. All the soft soaps are non-settled soaps and as such they are solidified, one-phase, semi-pasty, or "closed" soaps. Closed soaps are not salted out and therefore contain all the components used and formed while producing them, i.e., all the glycerin freed at the saponification, the added electrolytes

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and actual impurities of the raw materials and—of course—the soap mass itself.

The method of preparation of unsettled soaps is based upon the formation of a soap paste which is subsequently modified by adding a quantity of salt that is not sufficient to effect complete separation.

The lathering shaving creams on the market contain:

Potassium and sodium soaps of coconut oil and tallow, etc., with stearates and, sometimes, olive oil soap; plus free stearic or other fatty acid.

Glycerin.

Electrolytes such as KCl or borax.

Water.

Perfume compound and other additions in smaller quantities (e.g. traces of lanolin or white oil).

The interactions between the ingredients decide the character of the finished product.

Lathering shaving cream is a soft soap of creamy consistency with a pearly luster. To assure this appearance, certain conditions must be observed as to the choice of raw materials.

Characteristic is the influence of electrolytes on the viscosity of soap solutions. Numerous investigations show that the addition of an electrolyte to the soap solutions, provided the electrolyte concentration is small, causes a decrease in viscosity. With growing electrolyte content the viscosity again increases. After having reached a maximum viscosity a further addition of electrolyte reduces it a second time. Addition of a still greater quantity of electrolytes causes a further increase of viscosity until the salting-out limit is reached.

The second decrease of viscosity with moderate electrolyte concentrations is made use of when boiling settled soaps for the purpose of keeping the boiling mass in a semi-pasty or "closed" condition.

When producing soft soaps, the addition of electrolytes aims at the attainment of a pasty consistency, which is required in soft soaps. Soft soaps which have been saponified with caustic alkali only and do not contain any other electrolyte, present a viscous and tough gelatinized mass. Such soft soaps cannot be stored and would be difficult to sell. The practical soapmaker calls the process of adding electrolytes to the soft soap preparation "reduction."

The electrolytes used in the preparation of soft soaps are chiefly potash or potassium chloride. For shaving cream the most suitable electrolyte is *borax*. Borax is preferred here because of its mild influence on the skin of the face. The sensitivity of the skin is naturally affected by the hydrolysis of the soap solution, forming alkali hydroxide.

If the electrolytes remain in the soap, as is the case with soft soap and shaving cream, the addition of electrolytes is also of importance, as these greatly increase the foaming capacity. When preparing lathering shaving cream, we specially try to regulate the quantity of electrolyte added, in such a way that the maximum lathering capacity is reached. At this maximum there is also a minimum of lather, but the latter becomes thick and small-bubbled.

With so-called white soft soaps, a small part of the potassium is usually replaced by sodium. This is in order to get a pearly but not quite transparent appearance. Sodium stearate soap, besides, melts at a higher temperature than potassium stearate scrap, and therefore crystallizes first in curd fibres. The rapid formation of curd fibres of the sodium stearate soap in the supersaturated solution suffices to initiate the further process of crystallization. Shaving cream, therefore, contains for the same reason, in addition to the main quantity of potassium soap, some sodium soap.

An important part of shaving cream is glycerin.

Glycerin is highly hygroscopic and has a very low vapor pressure. These properties make its use in many technical products desirable in order to avoid quick drying.

Addition of glycerin to soap in not too large a quantity favors the lathering capacity. There probably is a raised viscosity on the border surface against the air and thus an improvement in the stability.

When producing liquid soaps certain liquefying agents are necessary in order to reach and keep the required state of liquidity. Known as such are alcohol, sugar, electrolytes and glycerin. With shaving cream, therefore, addition of glycerin helps to keep a soft consistency.

Common soft soaps contain only those quantities of glycerin which have been split off the triglycerides during the process of saponification. In common soft soaps any special effect from these quantities of glycerin is not intended. With shaving cream, however, a certain addition of glycerin is necessary in order to bring about the results mentioned above.

When producing ordinary soft soaps, full saponification is always required. Contrary thereto, a certain amount of stearic acid is left unsaponified in shaving cream. Free fatty acids take part in the bringing about of the creamy or pasty consistency of the finished product. The latter effect of the free fatty acids is made use of in shaving cream. It must, however, be noted that a further addition of free fatty acids has a liquefying effect and, therefore, a warning must be given against their excessive use in shaving cream.—P. A. Mannheim, *S.P.C* 1956, p. 187.

Etholan

Etholan, being offered by Robinson Wagner Co., Inc., is a modified cosmetic lanolin soluble in alcohol to the extent of four per cent. It is a soft, waxy polyoxyethylene ether of lanolin which is completely soluble in water and is designed for use in hair sprays and other aerosol products. In hair lacquers, it functions as a conditioner and plasticizer, imparting lubricity and luster to the hair and flexibility to the PVP, ethyl cellulose, shellac films. It may also be used in clear liquid or cream shampoos to counteract the drying and defatting action of detergents and as an emollient in hair rinses and after-shave lotions.

Soap Antioxidant

Ortho-tolyl biguanide is now available to British soapmakers as an off-white powder of 95 per cent minimum purity, under the registered trade mark of "Sopanox." This versatile antioxidant melts at about 138° C. and 1 gram of it is soluble in 100 g. water at 25° C. (5 grams at 75° C.). Its solubility in alcohol, glycols and glycol ethers is considerably greater than this. Sopanox is basic in character and reacts with oleic, stearic and other fatty acids, so should not be incorporated into soap until after saponification has been completed. For the same reason, solutions should not be stored in block tin or aluminum containers. Further details are contained in the informative Monsanto bulletin.

New Products

Enriched Creme Shampoo (Lambert-Hudnut) is now being made available in a new formula for normal-to-oily hair contains one per cent of powdered egg along with conditioning components. It is available in four, eight and 16 oz. bottles.

(Continued from page 468)

mounted a treadmill adjusted at a 2½° rise and set at a speed of 2½ m.p.h. At five min. intervals for 15 min, the axillae were blotted with weighed filter paper previously treated with starch solution on one side and dried. A fourth blotting was made five min. after the subject stepped off the treadmill. During this test, the subject kept the arms elevated by means of a hand rail for support so as not to distribute any perspiration which occurred in the axillae.

Immediately on blotting, the filter papers were weighed on an analytical balance and then placed over an evaporating dish of iodine crystals heated to vaporize the iodine. The blue starch iodide color formed on the filter paper, wherever moisture was present, outlined the hairy portion of the axilla.

hours and still did not yield 10 milligrams of perspiration when calculated back to a 15 minute time interval. In over a thousand determinations on 13 subjects, who were our better perspirers, untreated axilla exuded from 11 to 792 milligrams of perspiration in a 15 minute time interval. (In all these cases, the pads were worn long enough to yield at least 100 milligrams of perspiration).

Whether the amount of perspiration was much or little, and this occurred with all subjects, the ratio of R/L was characteristic of the individual. In the great majority of the cases, the right axilla yielded more perspiration than the left. It was found that the amount of perspiration could vary from one 15 minute period to another under the same temperature and humidity conditions the same day. This, perhaps, is

TABLE 1
Axillary Perspiration (Treadmill)

Subject[1]		5 min.[2]		10 min.		15 min.		20 min.		Total	
		L[3]	R	L	R	L	R	L	R	L	R
1.	100	0	0	7[4]	7	20	20	24	20	51	47
2.	101	20	40	36	60	43	54	24	45	123	199
3.	101			78	81	66	66	22	52	166	199
4	101			49	65	59	62	51	41	159	168
5.	104	4	13	39	73	83	78			122	151
6.	104			32	38	45	45	17	14	94	97
7.	104	10	8	29	33	39	48	31	54	99	135
8.	105			16	20	8	10	1	2	25	32
9.	105			4	4	4	3	0	0	8	7
10.	103	30	36	69	75	33	34			132	145

1. Subject—Odd numbered are men, even numbered are women.
2. 5, 10, and 15 min. refers to time on the treadmill, 20 min. refers to weights of perspiration 5 min. after subject comes off the treadmill.
3. L and R refers to left and right axilla.
4. Figures are weights in milligrams of perspiration in the axillary area.

Results

Table 1 gives some typical data obtained by this method. The method is time consuming and color intensity developed on the filter paper used to absorb the perspiration could not be correlated with the weight of perspiration present. It was noted, however, that in general there was greater amounts of perspiration in the right axilla than in the left. Conditions of the room do not account for this difference in amounts of perspiration between right and left axilla since later testing under different conditions verified this point.

Method—Under Normal Working Conditions

Because the preceding method did not lend itself to the amassing of data for our studies on perspiration and anti-perspirant action, a method was devised in which the subjects continued at their regular jobs. This method was presented in a previous paper.[2] There it was reported that pads of absorbent paper packing material backed with a layer of rubber dam and wrapped in gauze were convenient for the purpose of determining the amount of perspiration in an axilla. The weighed pads in both right and left axilla at the same time were reweighed after various time intervals dependent on the perspiration production of the various subjects. In screening a group of some 30 subjects, many wore the pads for more than two

due to emotional or other stresses.

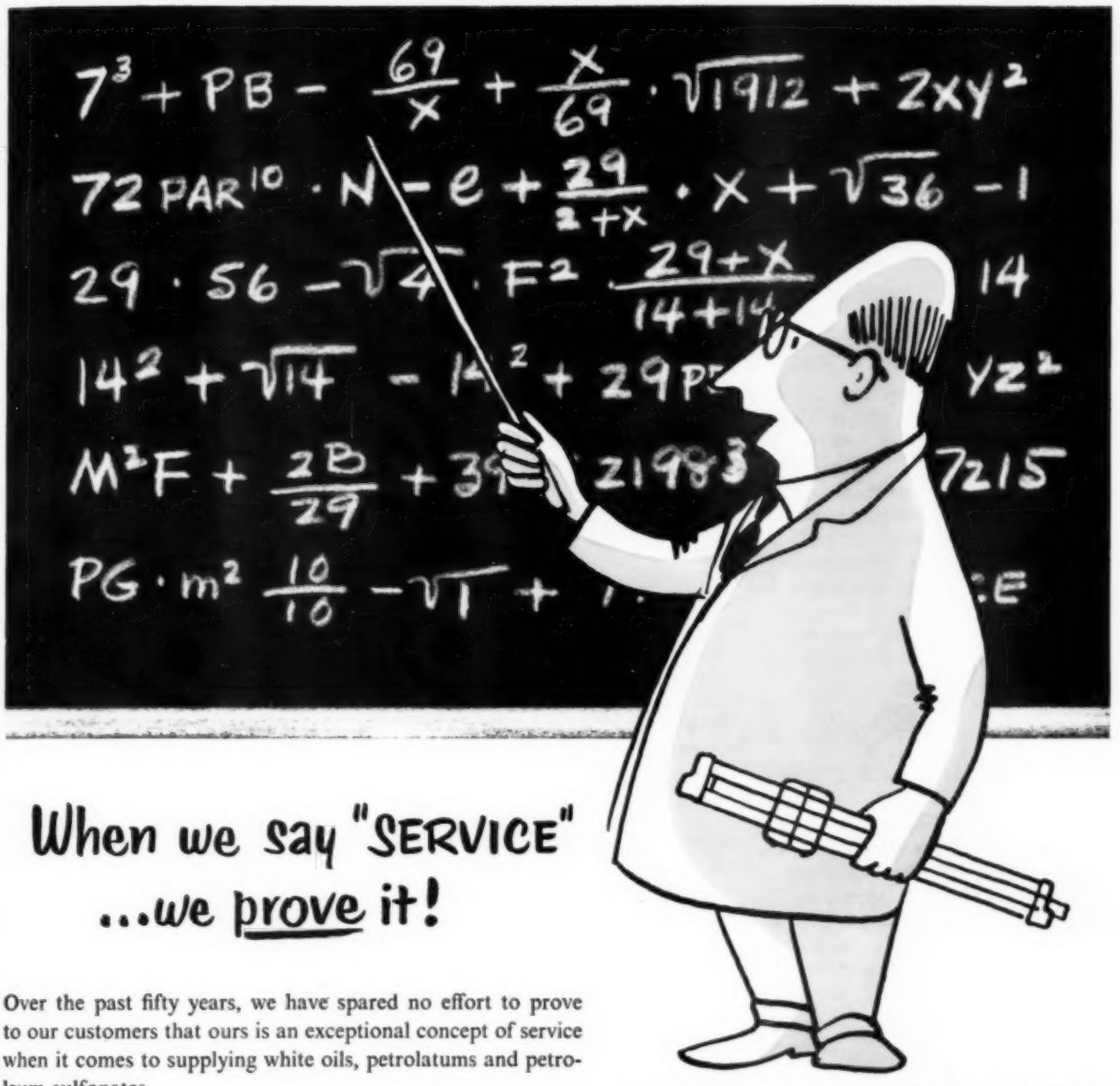
Axillary Odors II

When and how much odor does a person have in the axilla? Various workers who have reported an axillary odor are in agreement that this odor is characteristic. In studying this problem, preliminary work was carried on by a test procedure of Good Housekeeping. In connection with a study of anti-perspirant preparations and their harmful effect on fabrics, this method makes use of 4″ x 6″ pieces of muslin pinned to the armpit of the dress or shirt of the subject. These strips on removal from the garment at the end of a test period are evaluated for perspiration odor. Our comparison of the odor on the muslin strips with that of the odor determined by direct sniffing of the axilla revealed great variations. This can be accounted for to some extent by observing that the muslin strip in the armpit of some garments is relatively far from the perspiring axilla so that it does not become wetted by the subject's perspiration. To overcome this lack of correlation, a modified procedure was tried.

Methods for Evaluating Axillary Odors

Commercially available are some cotton balls about one inch in diameter. Using these as swabs, a subject wiped an axillary area and placed the pledget in a 1 oz.

(Continued on page 548)



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Perfumer's Shelf

The Violet Odor

Reference to the recipe books of the Victorian-age perfumers indicates that then, as now, "otto of violets" was a relatively expensive item. Therefore it is not surprising, and indeed it is of interest, to note that provision was made for "Imitation Essences of Violets." These were based upon a liberal proportion of extract of cassie, amounting to 40 per cent, fortified with 20 per cent each of rose, orris and tuberose extracts, and finally by the addition of 0.03 per cent of bitter almond oil.

At the outset, and particular to itself, the Violet nuance may perhaps be described as having a peculiar temperament, an odor with which it is very difficult to achieve satisfactory results without prolonged effort.

When a sweet base is required, recourse is usually made to a honey or an anisic - heliotrope - vanillin complex, which imparts to a composition a desirable level of mellow sweetness but, by the same token, that of the natural or artificial violet in the concentrated state already is far too sweet.

Moreover, there is also a secondary characteristic to be encountered, namely some suggestion of the powerful ethereal stridency of methylethyl and similar mixed aliphatic ketones, and the effect of these, superimposed upon an already sickly-sweet, high topnote, engenders a base that may be described as shrill and penetrating. Both these qualities remain, as it were, side by side in gradual dilution without appreciable diminution, and tend to produce entirely unwanted topnotes.

It is, therefore, not surprising to find the epithet of "cloying" applied to violet perfumes in general.

Although we are accustomed to add appropriate traces of the higher aliphatic aldehydes to improve our simulations of blossom perfumes, and for a considerable time the usage of small amounts of lauryl aldehyde gave reasonably good results in the case of the violet, yet this flower is unique among all others, in so far as it demands for its fullest expression a proper complement of leaf fragrance.

This effect can, we know, be passably achieved by the judicious usage of the alkyne carbonates, but more true-to nature effects follow the assistance obtained from the green-leaf alcohols, β-hexanol and its derivatives, and in particular 2:6 nonadienal. In this direction, assisted by various proprietary specialties, superb reproductions of remarkable delicacy and fidelity to all the natural violet fragrances are now possible.

In view of the fact that the formulas for artificial violet perfumes, as given in the literature, provide for the inclusion of the ionones and methyl ionones to the extent of about 50 per cent, a well-balanced violet compound can satisfactorily replace these ketones where they appear as components in floral simulations. By inclusion up to about five per cent, the action is mainly that of a sweetening agent from five to 10 per cent the position as an important middle note is evident and, above this level, to 25 per cent, the full action of the powerful topnote effect is displayed to advantage.

Although, as an individual flower perfume, the violet may perhaps never regain its former popularity, the violet osmophore nevertheless occupies an important position in modern fantasy bouquets. A glance at the structure of some of the most widely-used triads, for example: — Ionone - citron - rose, ionone-vetivert-bergamot, ionone-rose jasmin, ionone-ambre-citron, ionone-rose-ylang, ionone-incense-ylang—undoubtedly serves to emphasize the sweetness and powerfully diffusive effect of the subtle-toned violet osmophore.—E. S. Mauver, *S.P.C.* 29:1038, 1956.

Oil of Zingiber

Oil of zingiber zerumbet, Smith, has been found by V. K. Balakvishnan, et al (*P.E.O.R.* 47:274, 1956) to contain *l*-camphene, 1:8-cineole, dipentene containing some limonene, *d*-camphor, a humulene-type hydrocarbon, an unidentified alcohol and the solid sesquiterpene ketone, zerumbone. Various derivatives and degradation products of zerumbone have been examined. It is a monocyclic sesquiterpene ketone containing three double bonds, two of which are in conjugation on two sides of the same keto group. Zerumbone probably is a humulene-type compound. Possibility of the existence of a large ring in zerumbone is suggested from the infrared spectra of hexhydrozerumbone.

Orange Oil

The Orange oil of commerce is derived from several varieties of fruit and is a fairly uniform product within certain variable limits. Under a broader interpretation of the term oil of orange we could include the essential oils from the rind of the bitter orange, tangerine, mandarin and bergamot. These are classified and sold separately by the industry however. In addition an expensive and fine aromatic oil (oil neroli) is obtained from blossoms of the orange tree, and essential oils (petitgrain oils) are derived from the twigs and leaves of all the citrus trees.

Sweet orange oil contains no outstanding characteristic ingredient such as citral in lemon, but like lemon, depends upon aldehydes, in smaller percentage, for the bulk of its aromatic flavor. For many years decyl aldehyde, or aldehyde C-10, was considered the principle characteristic ingredient of the oil. It has been identified in the California oil with citral, octyl alcohol, linalool, formic acid and acetic, caprylic and capric acids partly as esters. Nonyl-alcohol, d-terpineol and methyl anthranilate were also found in the Italian oil. Over 90 per cent of orange oil is the terpene d-limonene and all orange oils contain a residue in varying

quantities depending upon the method of preparation.

The most complete work on the constituents of the essential oil of orange was done on the French Guinea oil by Y. R. Naves. He found this oil contained:

95-96 per cent terpene consisting of d-limonene, mycrene and traces of others.

1.6 per cent aldehyde which he concluded had the following composition:
- 31 per cent n-Octanal
- 27 per cent n-Decanal
- 6 per cent n-Dodecanal
- 7 per cent n-2-Decen-1-al
- 3 per cent n-2-Dodecen-1-al
- 7.5 per cent Citral
- 21.5 per cent Analytical losses

0.6-0.8 per cent volatile alcohols and esters consisting approximately of
- 50 per cent linalool
- 20 per cent n-nonyl alcohol
- 15-20 per cent d-α terpineol
- traces farnesol or nerolidol
- possibly n-decyl alcohol, geraniol, methyl anthranilate
- traces sesquiterpenes
- traces free higher fatty acids
- 0.8 per cent residue.

—*Giraudan Flavorist.*

Jasmin

Almost all the jasmin blossom oils used in better prefumery nowadays come from the *grandiflorum* species, because its blossoms radiate the finest and most penetrating fragrance. *Jasminum grandiflorum* has been cultivated in the Midi for almost 200 years, and growing jasmin blossoms had to be expanded continually in order to meet the increasing demand. Whereas in 1900 about 200,000 kilograms of blossoms were harvested, nowadays a normal crop in Southern France amounts to some six or seven hundred thousand kilos. At the same time the manufacture of Italian jasmin blossom oil is steadily gaining importance.

Although an essential oil can be obtained from the blossoms by means of steam distillation, the strong heating of the oil it involves makes this process impractical. For this reason jasmin blossom oil is nowadays almost exclusively obtained by extraction with volatile solvents, mainly by extraction with petroleum ether and benzene.

Enfleurage, the production of the blossom oil by use of fats (lard or tallow), is being used less and less. Its production by extraction with liquefied gases, especially with butane, on the other hand, does have a certain importance at present. The blossom absolute obtained in this way though extraordinarily fine in fragrance is very expensive.

Extraction with petroleum ether or benzene has to be done as quickly as possible after delivery of the blossoms. There is a number of apparatuses by which the essential oil can be almost completely extracted from the blossoms. The process is carred out in the cold in order to avoid any possible harming of the oil by heat. The oil obtained with the help of petroleum ether is considered to be finer than the benzene extract and is consequently more expensive, too. It has a light, radiant and crisp scent whilst the benzene extract shows a more subdued odor, suggesting in a way that of canned fruit.

The extraction process yields not only the essential oil, but also the wax contained in the blossom. The solid product obtained is therefore called blossom-concrete. By treating the concrete with alcohol, which dissolves only the blossom oil but not the wax, the pure blossom oil absolute is obtained. With jasmin the yield of absolute from the concrete averages approximately 50 per cent.

A second process used less nowadays for obtaining blossom oil is enfleurage, in which the blossoms are extracted by means of fats, above oil specially purified lard rather than a slightly fluid solvent. In this process a layer of lard (pomade) up to 2 cm thick is laid on glass plates called *chassis* which are encased in wooden frames about 6 cm. high, and densely covered with blossoms. The thickness of the charge with blossoms varies according to the procedures of the individual factories and is noticeable in certain differences in odor of the "pomade oil" obtained. The frames covered with blossoms are then piled up and exposed to a certain temperature, the height of which also influences the odor. The blossoms must be completely dry, else the pomade may turn slightly rancid. Damaged blossoms are sorted out as they could give cause to a brown shade of the finished product during extraction. The blossoms remain in contact for 24 to 48 hours with the pomade which during this time absorbs most of the essential oil they contain. Finally, the de-aromatized blossoms (*residus*), are laboriously removed from the pomade by hand and fresh blossoms are put on. This process is repeated about every week.

Since the residus blossoms are, however, not yet fully extracted, they are further processed with petroleum ether or benzene. The concrete thus obtained which has a high wax content is in turn separated by treatment with alcohol into odorless wax and absolute, now called absolu des chassis. The residus blossoms can also be extracted with chloroform; by this means a finished product with a strong indole and orange note is obtained. The fat enrichened with blossom oil, the jasmin pomade which now contains from one to 2½ per cent of the oil, is removed from the chassis after conclusion of the enfleurage, as the whole procedure is called, and poured into shaking—long drums of a capacity of 30 or 40 litres with methanol or ethyl alcohol. This process is repeated until the scent is altogether removed from the pomade. The alcohol, however, separates not only the scent from the pomade fat, but also mucilage and other odorless parts of the blossom that can be removed by freezing the alcohol solution to about —15°. The alcohol contained in the solution liberated from the heavy substances is then distilled off in vacuum and the pure absolu d'enfleurage, or jasmin pomade oil, is thus obtained.

Essential jasmin blossom oil, which plays such a large role in fine perfumery, has long been the object of thorough analytical investigations. In the course of time a whole series of components was found, for instance:

benzyl acetate,
benzyl alcohol,
linalool,
linalyl acetate,
anthranilic acid methyl ester,
indole.

Also discovered was Jasmone, a ketone with the formula $C_{11}H_{16}O$, which is the most important fragrance principle of Jasmin oil. So far, however, nobody has succeeded in producing, on the basis of this knowledge, a synthetic jasmin oil that could truly measure up to the genuine natural product—*Dragoco Report.*

Fostex, available as a cream and a cake, for the treatment of dandruff, acne and other seborrheic skin conditions, contains a combination of anionic wetting agents along with two per cent of sulfur, two per cent of salicylic acid and one per cent hexachlorophene.

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Advancing Therapy

Gastric Ulcer

The treatment of the uncomplicated ulcer according to a review by E. Hafter (*Ger. Med. Monthly* 1:165, 1956) should be conservative. The two aims are to arrest the acute attack and to prevent a recurrence. The first is greatly aided by nature: the acute ulcer has an astonishing tendency to heal spontaneously.

Treatment aims at removing the etiological and pathological causes of the ulcer: it results from peptic digestion of a portion of the mucosa where trophic changes have occurred. In gastric ulcers the trophic changes are the most important factor, while in duodenal ulcers it is the peptic activity. The basic aims of ulcer treatment are to inhibit peptic activity locally and to influence the autonomic nervous system and the psyche. All forms of therapy are based on these principles.

To decrease the action of the acid, non-absorbable alkali powders are given, e.g. bismuth subnitrate, calcium carbonate and milk of magnesia, taken by the teaspoon in some liquid, both regularly before meals and as soon as symptoms occur. Bismuth subnitrate yields the best local results. The action of kaolin or aluminium hydroxide is similar, although not quite as effective. Calcium carbonate has the most satisfactory neutralizing effects, both experimentally and clinically. It is not absorbed, but it induces unwelcome constipation which should be corrected by the addition of magnesium peroxide. In addition to the powders antacid tablets should be prescribed for those patients who still continue with their work. Whenever there is any discomfort these tablets should be taken.

Usually parasympathetic blocking agents, including atropine, belladonna or one of the synthetic anticholinergic drugs, are also given. They diminish tone and motility and thus act as analgesics. They also inhibit secretion, but hardly influence acidity. Should the ulcer be accompanied by "autonomic dystonia," which is almost invariable the case, sedatives (bromides, phenobarbital or one of the combined preparations) should be given before each meal.

Lowering of hyperacidity by use of ion-exchange resins has not shown very satisfactory results. All of the numerous ganglion-blocking agents with anticholinergic effect are of some use, although their advantage over atropine or belladonna is negligible.

Hormonal therapy has shown little success, but follicular hormones or testosterone may be effective during the climacterium. The corticosteroids are contra-indicated. They may precipitate acute attacks or hemorrhage and may favor perforation.

In summary it may be said that all methods which reduce or arrest pain favor healing of the ulcer, whereas all those precipitating and increasing discomfort have unfavorable effects. Should the symptoms fail to disappear after consistent medical treatment or the attacks recur so frequently that they interfere with normal life and working capacity; should a persistent ulcer crater give rise to a suspicion of malignancy; or should complications such as hemorrhage, perforation or stenosis arise, in all these instances surgical intervention must be resorted to.

Acetylsalicylamide

O. Piccinelli and A. Fiocchi (*Gazz. med. ital.* 115:139, 1956) carried out pharmacological and clinical research on O-acetylsalicylamide. The drug has no toxic effects; it is easily tolerated, and it has a marked corticotropic effect. One hundred forty-eight patients with rheumatism, fever, and various pains were treated with the drug. Dosage varied from 1 to 2 gm. per day given orally in divided doses of from 0.1 to 1.5 gm. at a time. Tolerance was perfect. Large doses caused some drowsiness. Gastric tolerance was very good. Blood pressure remained within normal values. There were no kidney complications. Results were good in five patients with rheumatism. Results were not so good in eight patients with rheumatic arthritis. Ten patients with muscular rheumatism recovered completely. The drug has a marked analgesic effect. Neurological affections were checked in one or two days. The antipyretic effect was poor in six cases of typhus and two cases of brucellosis. The effects were good in 11 cases of pleuropulmonary affections: both symptoms and fever were checked.

Screening Tranquilizers

The normal aggressiveness of male Siamese fighting fishes toward one another is modified when they are immersed in water containing tranquilizing and related drugs and this phenomenon has been suggested by E. J. Walaszek and L. G. Abood (*Science* 124:440, 1956) for the partial evaluation and screening of tranquilizers and related neurotropic agents. When the male fishes, in adjoining compartments of a glass tank, see each other, they respond by spreading of the fins, deeper color and aggressive attacks. If an active drug is dissolved (in very small amounts) in one compartment, the fish in that compartment will have a modified response to the pugnacity of its neighbor. On the basis of fighting and other behavioral responses, the drugs seem to fall into four distinct groups: the reserpine-meprobamate, the chlorpromazine, the antihistaminic and the barbiturate classes.

With reserpine and meprobamate, the fishes refused to fight, exhibited backward swimming movements and showed no attacking response. However, they remained active and had normal appetites. With chlorpromazine, they were sedated and strongly depressed and swam away when attacked by another fish. With antihistaminics (Phenergan, Pyribenzamine, Benadryl and Atarax),

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the fighting response was annulled, fishes were more or less depressed and retreated rapidly from the attacker. This behavior was altogether different from tranquilized fishes which retreated slowly and deliberately. The action of the antihistaminics was also greatly prolonged. The barbiturates produced a definite sedative effect but the fighting response was still present. With sodium salicylate and morphine, the fishes behaved normally with perhaps some excitation and increased aggressiveness.

Acetyldigitoxin

Acetyldigitoxin was used by S. J. Shah, S. Rubler and R. E. Weston (*J.A.M.A* 161:1543, 1956) in 80 patients with heart failure of varying degree and causation. For initial digitalization, 1.5 to 2 mg. was given by mouth in divided doses over a 24-hour period; for maintenance, 0.1 mg. was generally given by mouth once or twice daily. Intravenous administration was tried in a few patients, and the maintenance dose by this route was found to be about two-thirds of the oral maintenance dose.

Anorexia, nausea, and electrocardiographic changes characteristic of digitalis overdosage were observed in 21 sicker patients in whom administration was continued deliberately to the point of therapeutic response or toxic effect. These subjective and objective signs of toxicity generally subsided within 24 to 72 hours. The promptness of their disappearance is an advantageous property of acetyldigitoxin.

New Narcotic Plant

A tree which Indians of the Valley of Sibundoy, in the Colombian Andes of South America, cultivate for use as a narcotic is the subject of a monograph by R. E. Schultes published in 1955 (*Botanical Museum Leaflets*, Harvard University.

Examination of flowering material from the tree seemed to show that the tree should be placed in a new genus of solanaceous plants close to the *Brugmansia* group of *Datura*.

Methysticodendron amesianum, R. E. Schultes, is a small tree suggestive of some of the larger tree species of *Datura*, but with a number of characters not normal to solanaceous plants. It is described as by far the strongest of the many narcotic plants of the region. The intoxication it gives is resorted to by witch doctors only for important or difficult cases of divination, or therapy. It lasts usually for two full days and may last for four, and includes a long period of complete lack of consciousness. It would appear that the leaves are gathered not more than an hour before the narcotic drink is taken, crushed and cold-infused for half an hour. Just before the draught is to be taken leaves and infusion are slightly heated and agitated; the liquid is then strained. Over a period of two to three hours a quantity of up to a large cupful is taken in order to achieve a state of frenzy. Medicinally, tumors and swellings are treated with a sort of plaster made by heating leaves and flowers in water. For chills and fevers the body of a patient is sometimes bathed with a warm decoction of the leaves and flowers before being smeared with lamb fat on chest, back and abdomen.

The active constituent appears to be an alkaloid or alkaloids similar to hyoscine and hyoscyamine.

Synthetic Bifidus Factor

Clinical trials by E. Walch (*Ger. Med. Monthly* 1:107, 1956) have shown that a synthetically produced derivative of N-acetyl-glucosamine, β-ethyl-N-acetyl-D-glucosaminide (50 mg. for each 100 Gm. of half-strength cow's milk), effectively stimulated the intestinal growth of B. bifidus in all of 35 bottle-fed newborn babies to whom it had been given. Bacteriological examination of stool showed an almost exclusively Gram-positive flora, 65 per cent of which was B. bifidus. Consistency and color of the stool corresponded to that found in breast-fed babies.

It is claimed that N 180 is the so-called "bifidus factor" of human milk, but is a synthetic compound which is not found in human milk. However, all substances isolated from human breast milk that effectively stimulate the growth of B. bifidus contain N-acetyl-D-glucosamine in a glycoside linkage.

Further studies are necessary to indicate the practical advantages for bottle-fed babies. But they point the way to achieving greater similarity to breast milk when cow's milk has to be given.

New Analgesic

Paul A. J. Janssen of the Eupharma Research Laboratories of Turnhout, Belgium, reports in the Journal of the American Chemical Society, 78:3862, 1956 on a series of potent synthetic analgesics. These are substituted phenylpropylamines and serial number R 610 (dl-2,2-diphenyl-3-methyl-4-morpholinobutyryl-pyrrolidone) appears to be one of the promising candidates. The d-isomer, serial number 875 is twice as active as the racemic mixture. As an analgesic, R 875 has higher oral activity and a better therapeutic ratio than any other analgesic compound tested. It is 60 to 100 times more active than meperidine, 10 to 40 times more active than morphine, five to 20 times more active than methadon and about four times more active than heroin. Preliminary double blind experiments with the racemic compound (R 610) in human subjects indicate an analgesic potency about three times that of morphine; no side effects were observed after subcutaneous injections of 12 mg. of the compound.

Synthetic Oxytocin

The oxytocic hormone of the posterior pituitary, isolated and standardized, is known as oxytocin (*B.P.*) and also by the trade name "pitocin." It was first synthesized by du Vigneaud and his colleagues in 1953. Oxytocin has now been synthesized by a different method and the product is named "syntocinon."

Syntocinon has been standardized against standard pituitary powder upon animal preparations, by other workers, and in Switzerland it has been used clinically.

M. N. Bainbridge et al. (*Brit. Med. J.* 1956, p. 1133) assayed syntocinon against oxytocin in the human, employing three different categories of patient: (1) action on the corpus and cervix uteri of patients undergoing therapeutic abortion; (2) action upon the uterus of patients in labor who require oxytocic infusion as treatment for inertia; and (3) action upon the uterus of post-partum patients on the second and third days after delivery, a statistical assay by a modification of the method of Myers-cough and Schild.

No qualitative or quantitative difference between the two compounds was demonstrated, nor were any side-effects encountered in the doses administered.

New Pharmaceuticals

Pyrazoline-S (U. S. Standard Products) is an injectable analgesic for joint and muscle pain. Each cc. contains 500 mg. of dipyrone, 0.6 mg. of physostigmine salicylate and 0.6 mg. of atropine sulfate and the preparation is available in 30 cc. vials.

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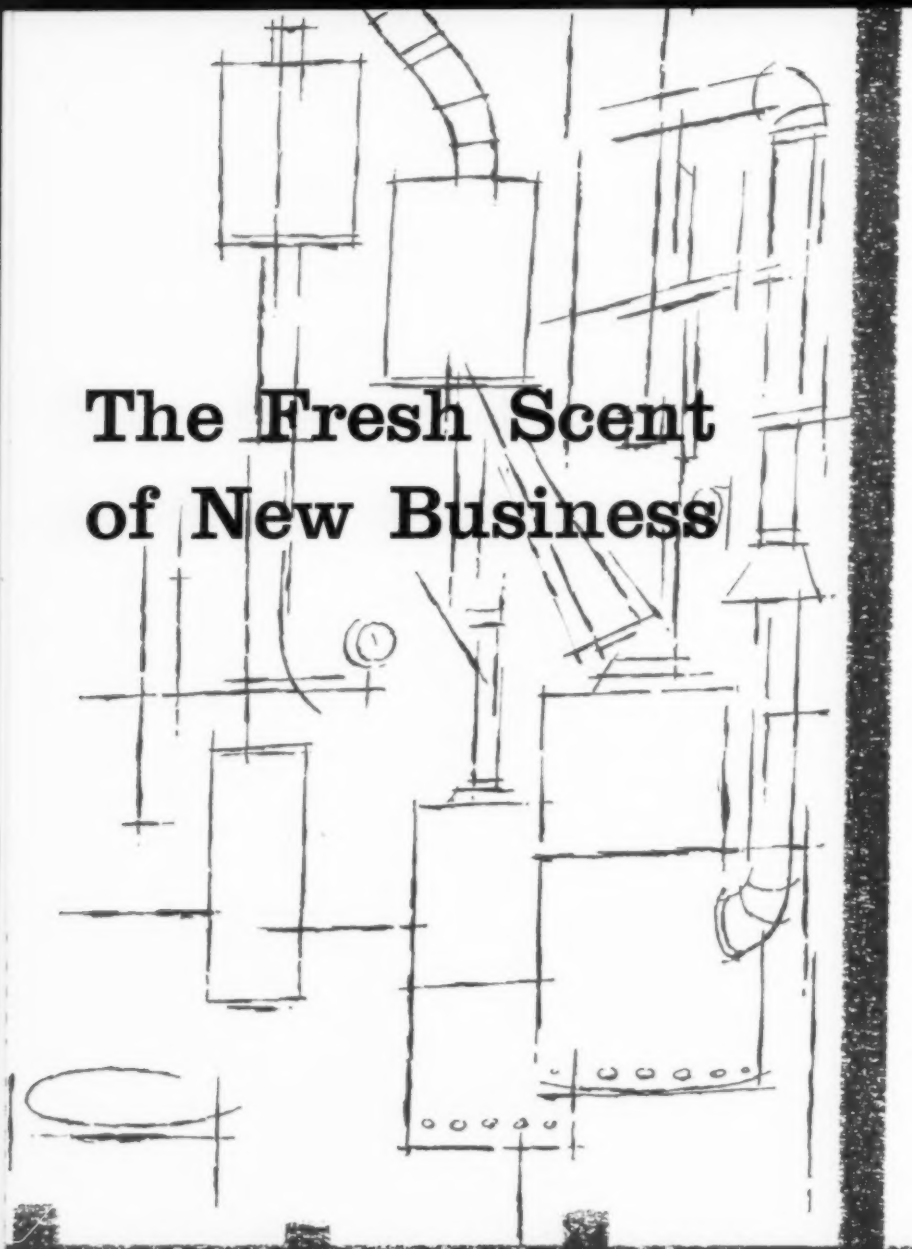

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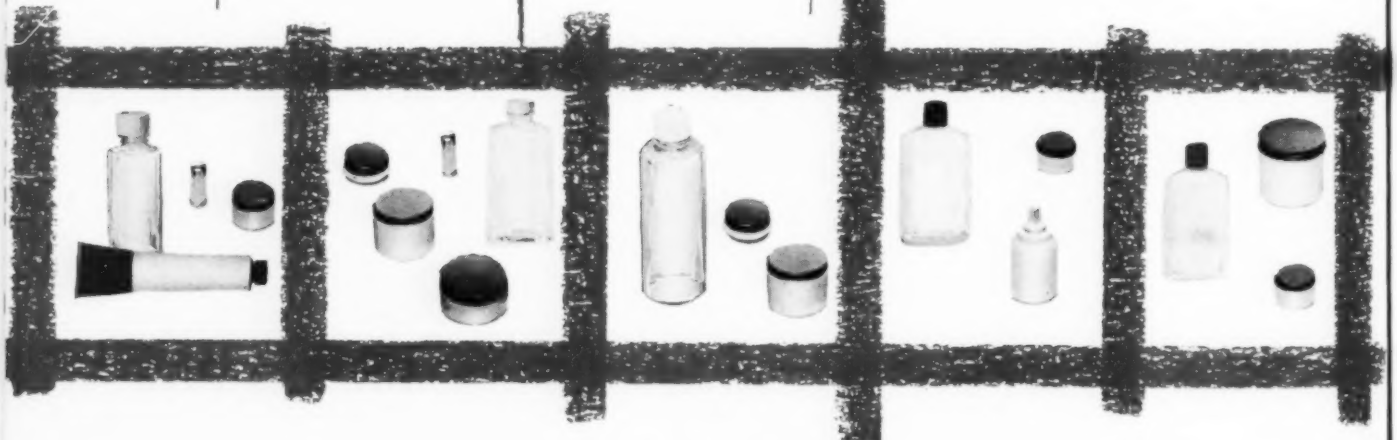

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Skin Research

New Books

Three new books concerned with fundamental knowledge of the skin have recently reached this desk (are still there, in fact) and we will pass on a description of their contents. They should certainly be included in any cosmetic library that has any pretension to adequate coverage of the field.

"The Structure and Function of the Skin" by W. Montagna of Brown University, published by Academic Press, New York "brings together much of our knowledge of the microscopic anatomy of the skin. It deals with the histology, cytology, histochemistry, and . . . with the electron microscopy of the skin. It deals also with the known or presumptive significance of the structural details discussed. . . ." Chapters include the general anatomy of the skin, the epidermis, the eccrine sweat glands, the apocrine sweat glands, the pilary system, the sebaceous glands and the dermis.

"Human Perspiration" by Yas Kuno, published by Charles C. Thomas, Springfield, Ill. ($9.50) is a complete rewriting of Kuno's monograph "The Physiology of Human Perspiration" published in 1934 and long since out of print. Thirteen chapters cover insensible perspiration, the sweat apparatus, outline of human sweating, the development of the human sweat apparatus and of their functions, perspiration on the palms and soles and the effect of mental stress on perspiration in general, sweating of the axilla, sweating on the general body surface—thermal sweating, chemistry of sweat, the loss of water and salt by sweating, the acclimatization of the human sweat apparatus to heat, the significance of sweating, and notes on anhidrosis and hyperhidrosis.

"Der Schweiss" by H. P. Fiedler is published in German and combines discussions of the scientific and practical aspects of perspiration, its origin, composition and control. Chapters cover skin water loss, sweat glands, the physiology of sweat secretion, the meaning of skin water loss, sweat, the composition of sweat, disturbances of sweat gland function, hyperhidrosis, sweat formation and deodorants, and formulas. The section on deodorants discusses the various types of antiperspirant and deodorizing agents.

Zirconium Irritation

Drs. L. F. Weber, I. Neuhauser, L. Rubin, A. H. Slepyan and H. Shellow of the Department of Dermatology of the University of Illinois College of Medicine report in letter to the *Journal of the American Medical Association* (162:65, 1956) on granuloma of axillas presumably caused by zirconium stick deodorants; the full text of the letter is reproduced here:

"A preliminary report on the suspected cause of an unusual eruption on the axillas of women is worthwhile for diagnosing and possibly averting this new disease. Since the presentation of two cases at the Chicago Dermatological Society meeting on May 16, 1956, our colleagues have been seeing similar cases. In our series of four cases, women in the middle-age group were affected. The eruption was limited to the axillas, particularly the hairy area. The lesions were papules and nodules, with the highest point resembling a vesicle. Fluid was not obtained from the pseudovesicles. Clinically, the eruption was unlike any cutaneous disease, common or uncommon, previously seen on the axillas. For this reason, a biopsy was performed on three patients and repeated on the first one several weeks later. Histopathological findings were those of a tuberculoid reaction, suggesting the presence of a foreign body. The sections suggested the features of a silica or talc granuloma. In our cases, the source of the foreign body was probably the introduction of some substance into abraded areas, caused by shaving the axillas. This probably occurred when stick deodorant containing zirconium was applied once or twice daily on the skin of the axillas.

"We now suspect that the cause of this unusual eruption on the axillas is zirconium, a metallic element similar to titanium and silicon. The history of contact with a stick deodorant containing zirconium is common to all four women, and it is a reasonable explanation for the localization of the eruption on the axillas. The course of the disease is unknown to us at this time. Gradual improvement of the eruption in the first patient leads us to believe that spontaneous cure, although slow, is likely."

Shaving and Skin pH

The *p*H value of the human skin lies between 4.5 and 7. This acidity is mainly due to the presence of fatty, hydroxy and amino acids on the skin surface and to a lesser extent to carbonic acid, which is excreted through the skin. The use of an alkaline shaving soap will increase the *p*H value of the skin. Whether it becomes alkaline and if so to what extent and for how long, depends on (1) the percentage of free alkali in the soap, (2) the power of the skin to neutralize alkalies, and (3) the intensity with which the skin is rinsed after shaving.

Since interference with the acid mantle of the skin may cause irritation, inflammation and, perhaps, more serious complaints if the natural acidity is not restored within a reasonable time, it is of importance to know the effect upon skin *p*H of various shaving preparations. It was with this object in view that a German worker, Frau Koch, made a number of experiments in the research laboratories of Hans Schwarzkopf, Hamburg-Altona. These were recently reported in the periodical *Mosmetik*.

Frau Koch began by measuring the *p*H of various preparations and found the following values: shaving soaps and creams 10.1-11.3, aerosols 8.3-9.8, brushless creams 7.8-8.9, and after-shave lotions 4.4-7.

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The experiments were made by measuring at intervals of 20 min. the *p*H value on the chin and the upper lip after shaving, rinsing and drying in the normal way. Special flat glass electrodes were used for the measurements. The time required to restore the initial *p*H value of the skin varied very much with the nature of the shaving agent. In most cases the skin regained a weak acidity after 30 to 60 min., but it often took several hours before the original *p*H was fully restored.

After shaving with a normal shaving soap of *p*H 11.3, the *p*H value of the skin rose to 9.5; neutrality was reached after one and one-half hours and the original acidity after four hours. When a weakly alkaline shaving cream (*p*H 8.5) was used, neutrality was restored after 20 minutes and the original *p*H after two hours. An after-shave lotion immediately reduced the *p*H to below 7 and it took less than one hour to restore the original acidity. The more acid after-shave lotions brought the *p*H value of the skin back to the original figure at once. The alkalinity of brushless shaving creams was usually so small that the *p*H of the skin never rose above neutrality and regained the initial value in less than 20 minutes.—*Manuf. Chem.* 27:167, 1956.

Keratin Precursor

A fibrous protein was extracted by D. A. Roe (*J. Invest. Dermatol.* 27:1, 1956) from human epidermis with 75 per cent lithium bromide and was dried as a film. It was oriented by extending strips of the film 200 per cent of their original length. Following this procedure, the film became birefringent and showed an alpha x-ray diffraction diagram similar to epidermal keratin.

Elasticity and thermal contraction studies showed the relationship of this protein to keratin, myosin, epidermin and fibrinogen.

Significant amounts of this protein were present throughout the cellular epidermis, but more was found in the upper than in the lower part. Very small amounts were obtained from samples of powdered callus.

At present, it is impossible to determine the role that this fibrous protein plays in epidermal differentiation. On the basis of available data, it is probable that this substance is a prekeratin. This probability is supported by the chemical findings and more particularly by the alpha x-ray diagram. The purity of the protein and its chemical characteristics are at present under investigation and the findings will be described in a later paper. A particularly interesting finding may be mentioned here, namely the extremely low disulfide content of the fibrous epidermal protein. Apparently "keratins" become fibrous and even resistant to solvents before they are stabilized by disulfide cross-linking.

At first it would seem strange that although only very small amounts of this protein were obtained from powdered callus, considerably more was extracted from the upper than the lower layer of the plantar epidermis. However, this apparent discrepancy could be explained by postulating that the upper layer contains not only the stratum corneum but also the stratum granulosum and lucidum.

Although the part that this protein has in epidermal metabolism cannot as yet be established, the regular occurrence in all human epidermal specimens tested suggests that it is an essential component of human epidermis. Work is in progress to determine the relationship of this fibrous protein to the keratins and to the process of epidermal keratinization.

Human Hair Fat

A study was made by N. Nicolaides and R. C. Foster, Jr. (*J. Amer. Oil Chem. Soc.* 33:404, 1956) of the hair fat composition of human adults with reference especially to its ester content. Waxes, triglycerides, and a mixture of mono- and di-glycerides were isolated and characterized. Indirect evidence is presented that the free acids of hair fat are derived from the lipolysis of triglycerides. Some preferential esterification of some kinds of fatty acids as glycerides and others as waxes was observed. No significant differences could be observed in the analysis of the hair fat of adult males compared with that of adult females of the same age group.

Cystine

Cystine crystallizes in thin, colorless hexagonal plates. It has no definite melting-point but seems to decompose slowly in the region 258°-261° C. The D-cystine has a melting-point of 247°-249° C., L-cystine 258°-261° C., and DL-cystine 260° C. Cystine is a notoriously insoluble substance, being almost completely insoluble in water, alcohol and the usual laboratory solvents; it is, however, soluble in strong acid and in strong alkali.

Cystine, when given in food, is excreted as sulfate, as a result of oxidation processes in the animal body, although the body makes use of a certain proportion of the cystine in order to satisfy the sulfur on which it depends. In addition, two other amino acids are present in the proteins of the diet which goes to supply the sulfur requirements of the animal body, *viz.* methionine and cysteine.

The amount of cystine contained in the more important tissue components is high. For example, hair, skin and nail are all remarkably high in cystine content. Bachtola reported the following figures:

Human hair	**13-14.5**
Human nails	**5.15**
Horsehair	**7.98**
Horse hoofs	**3.20**
Pigs hoofs	**2.17**

Many other workers have reported that human hair contains as much as 16 per cent cystine, while Du Vigneaud notes that insulin and highly purified preparations of the oxytocic and pressor hormones of the pituitary gland contain 12 per cent and over 20 per cent of cystine respectively. After very extensive researches, Du Vigneaud and his colleagues have shown that the body is able to convert methionine to cystine by means of a series of transformations known as trans-sulfuration.

This work illustrates the importance of methionine as an essential ingredient of a normal diet. Its inclusion in certain hair tonics seems to be sound in principle, since the hair requires cystine.

Cystine plays an important role in the permanent waving of human hair because it provides the disulfide cross-linkages of the polypeptic "Grid." In fact, cold waving depends upon the reduction of these S—S bonds to —SH groups and, subsequently, the oxidation of the latter back again to the disulfide cross-linkages.—G. T. Walker, *Manuf. Chem.* 27:319, 1956.

Selenium Sulfide Cream

Thirty-two patients with pityriasis versicolor were treated with a one per cent solution of selenium sulfide in a water-miscible ointment base. Involution of lesions occurred in 28 patients, and no recurrence of the eruption was noted after one year. These results indicate that a one per cent solution of selenium sulfide ointment is an efficacious method of treatment for pityriasis versicolor. It is clean, nonirritating, and effective. No adverse reactions were encountered in this study by H. M. Robinson, Jr. and S. N. Yaffe (*J.A.M.A.* 162: 113, 1956).

Industry's Books...

The Chemistry and Technology of Waxes, *by Albin H. Warth, Wax Research Consultant, 2nd Ed., Reinhold Publishing Corp., New York, 940 pp., (1956), cloth,* **$18.**

This greatly enlarged Second Ed. of Warth's book presents a thorough and complete picture of the entire wax industry from the natural to the applied science. The many new developments in wax research and technology since the first ed. (1947) have been included as well as valuable new illustrations, charts, tables, and literature and patent references. Chemists, technologists and others who require a knowledge of waxes in their work will find this book an ideal reference source.

Sodium, Its Manufacture, Properties and Uses, *by Marshall Sittig, Ethyl Corp., ACS Monograph No. 133, 529 pp., Reinhold Publishing Corp., New York, (1956), cloth,* **$12.50**

This volume combines all the information currently important in the manufacture, handling and use of sodium with a critical coverage of its physical, chemical and thermodynamic properties. Contained in the book are 150 illustrations including flow sheets, line drawings and photographs of equipment and actual sodium handling operations. More than 2,000 references give ready entree to the entire body of published periodical and patent literature on sodium, at the same time keeping the book to a compact and usable size.

Chemistry of Carbon Compounds, *a modern comprehensive treatise, edited by E. H. Rood, D.I.C., Volume III Part B—Aromatic Compounds, 1669 pp., Elsevier Publishing Co., New York, (1956), cloth,* **$25.**

Volume IIIB completes the description of important classes of benzene derivatives containing a single aromatic ring and of those having two or more benzene nuclei in the molecule, separate or condensed. The modern extended conception of aromaticity is developed in a chapter on quasi-aromatic compounds in which the chemistry of tropolone and related compounds is discussed as well as that of the pseudo-aromatic metal derivatives of cyclopentadiene. The last three chapters describe aromatic homocyclic compounds derived from condensed ring systems, from indene, naphthalene and anthracene to zethrene and coronene, dealt with in detail according to their theoretical and practical importance. Descriptions of the chemistry of many types of natural products find a place in this volume, as varied in origin and structure as the depside tannins, thyroxine, phthiocol, emodin, aureomycin and terramycin.

Human Perspiration *by Yas Kuno, M.D., Member of Japan Academy, 416 pp., Charles C. Thomas. Publisher, Springfield, Ill., (1956), cloth,* **$9.50.**

This is a clear explanation of the significance of human perspiration. It presents a complete anatomical and physiological description of the sweat apparatus with many valuable suggestions for clinical application in medicapractice, as well as important information for those concerned in a practical sense with the daily consequences of human perspiration. The book presents new aspects on the structure of the epidermis and sweat glands, and on the development of the sweat apparatus. It also presents a classification of human sweating into mental and thermal sweating, as well as a detailed study of sweating in physical exertion and exercise.

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(Continued from page 534)

clear glass jar which was then capped with a lid from which the cap liner had been removed. For the preliminary work, three observers compared odor intensity of the swabs with direct axillary sniffing of the subjects. Equivalent odor values were obtained thus establishing the swab method as a way of obtaining odor samples which would be more convenient for the subject and for the observers making the evaluation. Noting the reaction of the observers evaluating the swabs, we established a scale of odor values which were readily recorded and readily impressed on inexperienced observers. The categories established are:

1. No body odor or slight odor (perfume, etc.)
2. Slight body odor not considered objectionable.
3. Objectionable body odor.
4. Very objectionable body odor.

TABLE 2
Control Odors

	9/5				9/6			
	L	L	R	R	L	L	R	R
Subject	10	4	10	4	10	4	10	4
1	2	2	2	2	2	3	2	3
2	2	3	2	3	2	3	2	3
3	2	2	2	3	1	2	1	2
4	1	1	2	2	1	1	1	1
5	1	1	1	1				
6	2	2	2	3				
7	1	1	1	1				
8	2	2	2	2				
9	1	1	1	1				
10	1	2	2	2				
11	2	2	2	2				
12	1	1	1	1				
13	2	3	3	3				
14	3	3	3	3				
15	2	2	2	2				
16	3	3	3	3	2	3	3	3
17	2	3	2	3	2	3	2	3
18	2	3	2	3				
19	1	2	2	3	2	2	2	3
20	2	3	2	3	2	3	2	3
21	2	2	2	2				
22	1	1	1	1				
23	1	1	2	2				
24	3	3	3	3	3	4	3	4
25	2	3	3	3	2	3	3	4
26	2	3	2	3	1	3	1	3
27	3	3	3	3	3	4	3	4
28	3	3	3	3	2	3	2	3
29	1	3	1	2	1	2	1	2
30	2	2	2	3	2	3	2	3

TABLE 3

Date	Subject	Nutrient Agar Count L	R
6/17	101	13,000	10,90
6/11	101	15,000	8,900
6/13	102	2,400	14,000
6/13	103	137,000	43,000
6/13	105	131,000	315,000
6/11	106	196,000	260,000
6/13	107	15,000	28,500
6/11	109	360,000	331,000
6/11	113	37,000	9,000
6/11	119	261,000	212,000

Results

Table 2 is a tabulation of results on thirty subjects. Subjects on any of these tests were male and female Caucasians.* From Table 2, it will be noted that only twelve out of the thirty subjects attained an objectionable odor level in the axillae by 4 PM where odor evaluation was made both AM and PM after the subjects had been instructed 48 hours prior to the observations to refrain from using any deodorant preparation. Some subjects, who were under observation for an extended period of time and who had not used a deodorant, did not develop objectionable odor levels. Of these, some did not seem to ever produce objectionable odor levels while others, male and female, would periodically run high odor levels. Some few subjects always ran objectionable odor levels. Therefore, in a test method for axillary odors, a control is necessary. From Table 2 again, it is noted that like odor levels occurred in right and left axillae. By treating one axilla and leaving the other as a control, effectiveness of deodorants can be determined. Useful data can be obtained only if the control axilla, at the end of the test period, has attained a sufficiently high odor level to be classified as objectionable.

Axillary Bacterial Count and Odors III

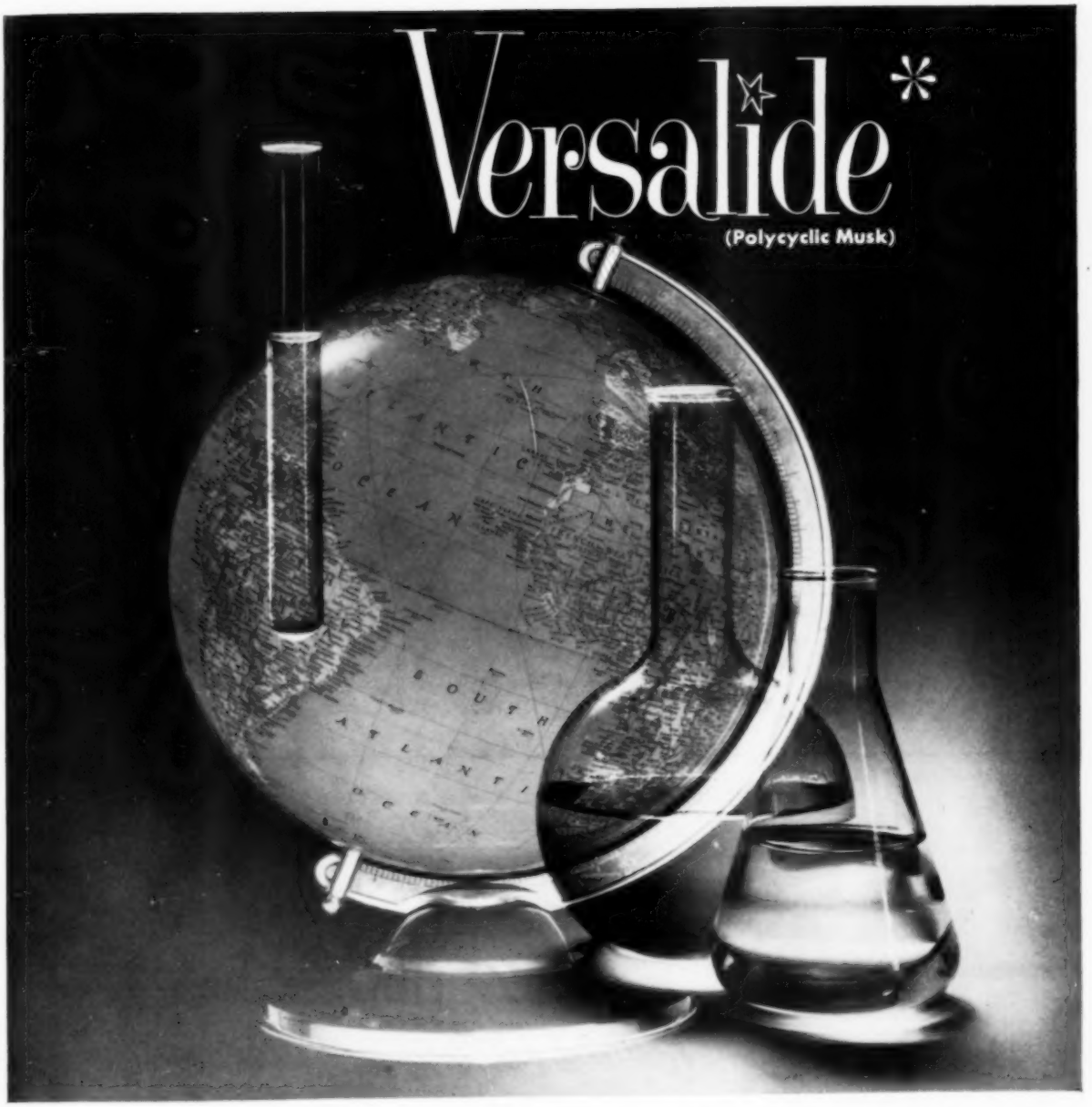
To obtain a rough idea of bacterial numbers present in the axillary areas, a swab technique was used. Table 3 shows control counts and Table 4, counts on treated axilla.

To check the relationship of bacterial count to odors, the left axilla of each of five subjects was washed repeatedly at 9 AM with 70 per cent alcohol. Sterile gauze pads were then applied in both left and right

TABLE 4
Treated Axilla Counts

		Product	Treatment		Nutrient Agar Count L	R
6/14	110	A	L & R axilla 24 hours before		400	400
6/14	108	B	" " " " " "		< 100	200
6/16	102	C	R axilla treated 9AM after control swabs for count	control	30,000	11,900
				10 AM	33,000	< 100
				2 PM	79,000	100
6/13	101	C	R axilla treated 10 AM		—	—
				3 PM 6/13	1,200,000	800
				10 AM 6/14	758,000	1,600
6/18	101	C	R axilla treated 6/17 and swabs for counts taken 24 hrs. later		55,000	2,900
	102	C	" " " " " "		636,000	60,000
	103	C	" " " " " "		9,700	7,400
	104	C	" " " " " "		1,120,000	43,000
	105	C	" " " " " "		376,000	4,600
	107	C	" " " " " "		24,000	12,000

(Continued on page 552)



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Trade Literature

Aerosol Story

The Aerosol Story, a 48-page brochure, has been issued by Dodge & Olcott, Inc., 180 Varick Street, New York 14. The booklet discusses types and principles, propellents, containers, valves, laboratory yeasts, labeling, and pre-marketing checks. An important section is devoted to the task of perfuming the diverse aerosol products on the market such as colognes, hair dressings and lacquers, hand lotions, insecticides, moth proofers, shampoos, shave creams, and space deodorants. Seven pages of complete aerosol formulations are presented as well as an appendix with up-to-date listings of valve and container manufacturers and contract fillers plus a compilation of miscellaneous suppliers and services.

Chlorosulphonic Acid

One of the most completely available bibliographies of chemical abstracts relating to chlorosulphonic acid is among the new features of a new technical bulletin issued on this acid by the Inorganic Chemicals Division, Monsanto Chemical Company, St. Louis 1.

Prescription Pharmacies Facts

The 1955 survey, Facts on the Operation of Prescription Pharmacies, sponsored by the American College of Apothecaries is available from this organization at Hamilton Court Hotel, Philadelphia. This year's survey includes reports on 89 prescription pharmacies and represents one of the most complete studies of this type of operation. The study indicated, for the third consecutive year, a decline in net profit to 4.6 per cent. Average gross margin for these pharmacies was 44.2 per cent with a total expense of 39.6 per cent.

Pharmaceutical, Chem. Mach.

Colton Comments, Vol. 1, No. 1, a four-page, two-color, 8½ by 11 inch house organ describing a wide variety of new equipment for the pharmaceutical, chemical and other industries, is now available from Arthur Colton Company, 3400 East Lafayette, Detroit 7, Michigan.

Vaccination of Poultry

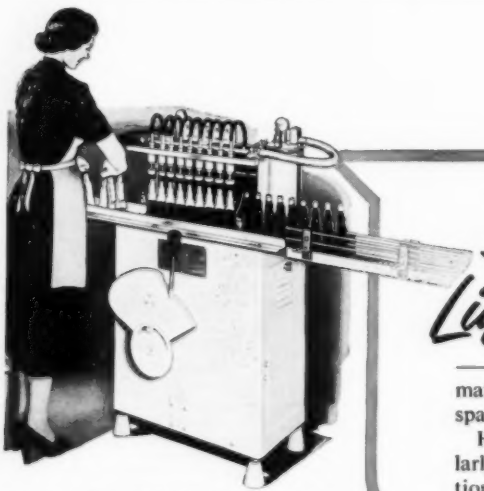
Dr. Salsbury's Laboratories, Charles City, Iowa, has issued a new book, Vaccination of Poultry. Highly illustrated, the book tells thoroughly the story of poultry vaccination, tracing the production and testing of vaccines under the most exacting conditions and explaining the prevention of various diseases by modern vaccination methods.

Operations Research

Operations Research Institute, 41 Fifth Avenue, New York 3, offers reprints of an article entitled Management *Can* Understand Operations Research. Using the question and answer technique, the article gives a down-to-earth explanation of linear programming, one of the war-born analysis techniques which industry is now using to simplify and improve such operations as inventory control, production scheduling, sales forecasting, transportation scheduling, etc.

Pressure Sensitive Labels

Facts on how to save time and money with pressure sensitive labels and dispensers are furnished in an illustrated bulletin offered by Archer Label Co., 783 Kohler Street, Los Angeles 21. Included are answers to questions on sizes in single or multiple width rolls, method of printing, available paper stocks and adhesives.



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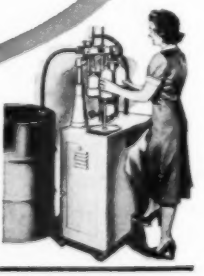

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1. "Symposium on the Role of Some of the Newer Vitamins in Human Metabolism and Nutrition," The National Vitamin Foundation at Vanderbilt University in October 1955 (to be published).
2. *Nutrition Reviews*, 13: 342-343, November 1955.
3. Kark, R. M.: In *Current Therapy* (Conn, H. F., Editor), Philadelphia, W. B. Saunders Co., p. 301, 1955.

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(Continued from page 548)

axillas and counts and odors noted according to Table 5.

Subjects with odorous axillae have washed the odorous areas with soap and water and 15 minutes later the odor had returned. Some subjects volunteered to not wash the axillary areas for a number of days. A few of these did not yield any axillary odor

TABLE 5

Subject	Nutrient Agar Count 6 hrs. after treatment of left axilla		Odor 6 hrs. after treatment		Odor 24 hrs after treatment	
	L	R	L	R	L	R
119	2,000	292,000	1	1	2	
123	59,000	820,000	3	4		
105	300	710,000	3	4		
107	34,000	960,000	2	2	2	2
109	112,000	650,000	2	2	2	2

RESULTS

6 Hour Test

Preparation	No. of subjects starting test*	Control No. Subj.	Control Odor Level	Treated No. Subj.	Treated Odor Level
10% Zn. SO_4 Cr.	26	2	(4)	4	(2)
		3	(3)	1	(1)
15% Al Sulfate Cr.	15	4	(3)	4	(1)
D	8	3	(3)	3	(3)
10% Al Sulfate Cr.	12	1	(4)	2	(2)
		3	(3)	2	(1)
9.5% Zn. O Cr.	17	4	(3)	3	(3)
				1	(2)
1% Phenyl Hg. Acetate	14	4	(3)	1	(3)
				3	(1)
5% Zn. Sulfate Cr.	15	8	(3)	6	(3)
				2	(2)
5% Methenamine	33	12	(3)	6	(3)
				3	(2)
				3	(1)

*This constitutes a miscellaneous group several of which had odor levels too low to be used.

16 Hour Test

Preparation	No. of Subjects starting test*	Control No. Subj.	Control Odor Level	Treated No. Subj.	Treated Odor Level
A	41	1	(4)	2	(3)
		14	(3)	13	(2)
B	10	1	(4)	1	(3)
		3	(3)	3	(2)
D	18	2	(4)	7	(3)
		7	(3)	2	(2)
E	22	2	(4)	2	(3)
		7	(3)	7	(2)

*See comment to previous table.

30 Hour Test

Preparation	No. of subj. starting test	6 hours Control No. Subj.	6 hours Control Odor Level	6 hours Treated No. Subj.	6 hours Treated Odor Level	24 hours Control No. Subj.	24 hours Control Odor Level	24 hours Treated No. Subj.	24 hours Treated Odor Level	30 hours Control No. Subj.	30 hours Control Odor Level	30 hours Treated No. Subj.	30 hours Treated Odor Level
A	28	1	(4)	1	(3)	9	(3)	9	(2)	1	(4)	3	(3)
				1	(2)								
		8	(3)	7	(1)					7	(3)	5	(2)
C	15	3	(4)	7	(1)	5	(3)	2	(3)	3	(4)	1	(4)
												5	(3)
		4	(3)					3	(2)	4	(3)	1	(2)
D	29	1	(4)	1	(4)	4	(3)	2	(2)	13	(3)	6	(3)
		11	(3)	4	(3)			2	(1)			7	(2)
				5	(2)								
				2	(1)								
E	12	2	(4)	1	(2)	7	(3)	4	(3)	3	(4)	1	(4)
		5	(3)	6	(1)			2	(2)	4	(3)	5	(3)
								1	(1)			2	(2)

Immediate Deodorization

Preparation	Original Odor No. Subj.	Original Odor Odor Level	Odor 15 min. after treatment No. Subj.	Odor 15 min. after treatment Odor Level
1½% Hyamine 1622 Cr.	3	(3)	3	(1)
5% Zn. Peroxide Cr.	1	(4)	7	(1)
	6	(3)		
5% Mg. Peroxide Cr.	2	(4)	7	(1)
	5	(3)		
1% G-11 Cr.	4	(3)	2	(2)
			2	(1)
0.5% para Formaldehyde Cr.	1	(4)	1	(2)
	4	(3)	4	(1)

(Continued on page 554)

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(Continued from page 552)

under such conditions when evaluated daily for five days. Yet, under other conditions and stimuli, they had high odors. In screening a miscellaneous group of subjects, we have found a number who are prone to have axillary odors.

6 Hour Test—Technicians contacted the subjects at their normal occupation between 9 AM and 10 AM and obtained identified swabs from both right and left axillas. (The subjects had been instructed to refrain from using any deodorant preparation for at least 48 hours prior to the test.) The subject then applied the product under test to one axilla leaving the other as a control. Swabs were again obtained between 3 and 4 PM and evaluated for odor according to the ratings mentioned earlier.

Discussion

Since many of our subjects showed low odor levels and invariably numerous bacteria were present in the control axilla, we stopped work on this phase after our preliminary studies.

Method of Studying Axillary Deodorization IV

In our studies, we found subjects in all the following categories:

1. Slight perspirer—odor rare
2. " " —odor most of the time
3. Profuse " —odor rare
4. " " —odor most of the time

16 Hour Test—The subjects, who had not used deodorant for 48 hours prior to the start of the test were supplied with the product under test and requested to apply it to one axilla between 9 and 12 PM. The following day, swabs were obtained from right and left axillas of the subjects 16 hours after they had applied the test preparation. These swabs were evaluated for odor.

30 Hour Test—This was carried out in the same manner as the six hour test except that the subjects were instructed not to bathe the axillas or apply any preparation until after swabs had been obtained the second day between 3 and 4 PM. In this test, data was collected at the six as well as 30 hour period.

Test for Immediate Deodorization of Odorous Axilla—At the termination of any of the preceding tests, subjects with odor levels of 3 or 4 in an axilla were used to determine immediate effectiveness of some deodorant products. Swabs were taken 15 minutes after the treatment of an odorous axilla.

Conclusions

People perspire varying amounts. Odors are not always present in axillary areas and odors present can be deodorized immediately and give prolonged reduction.

Further studies should be carried out on untreated axilla, except washing, on both men and women daily to determine their periodicity of odor production. From the studies so far carried out, it would seem advisable for most people to use a deodorant.

It should be emphasized that this study was carried out to determine odors in the axilla. Odor on clothing is another question and an important one.

REFERENCES

1. Yas Kuno, *The Physiology of Human Perspiration*, J. & A. Churchill, Ltd., London (1934), page 30.
2. W. G. Fredell & R. R. Read, *Proc. Scientific Section TGA* **15**, 23 (May 1951).

*The question arises as to the type of odor present in the axillary areas of persons other than caucasians. A preliminary study on six negro men, who were asked to refrain from using any deodorant so daily swabs could be taken, showed that high characteristic odor levels were not distinguishable from Caucasians when smelled by Caucasians.

COMPLEXATION INCOMPATIBILITIES

(Continued from page 457)

exhibit appreciable water solubility. Even those complexes formed by the higher molecular weight polyethers may not be immediately observed upon the addition of the first small quantity of the phenol, carboxylic acid or cyclic alcohol. This results first from the necessity of replacing a sufficient number of water molecules and secondly from the intrinsic solubility of the complex itself. It has even been demonstrated that certain dicarboxylic acids apparently become more soluble, initially, as a consequence of complex formation.[6]

Certain criticisms have been made of the complex formation postulated in the previous paragraphs on grounds which although pertinent and sound on the surface, do not consider all of the possible factors. In fact, many of the criticisms serve best to point up what has been referred to as the insidious character of these incompatibilities. One criticism which is levelled concerns certain formulations, usually emulsions or suspensions, containing one or more polyethers and phenols or similar compounds. These formulations, the critics say, have remained perfectly stable and show absolutely no signs of incompatibility. Such a criticism overlooks three factors. First, we are well aware that in most instances an emulsion or suspension is prepared with a fairly large excess of the emulsifying or suspending agent. It is rare to find minimal concentrations employed. As a result, the product may well remain stable despite any complexation which may inactivate a portion of the stabilizer. Secondly, the amount of material added to a particular emulsion or suspension is usually quite small and is seldom present in sufficiently high concentrations to completely, or even largely, inactivate the polyether. Lastly, the vast majority of emulsions and suspensions are opaque. Even though a considerable amount of insoluble complex did form and precipitate out, it would be virtually impossible to detect.

Another criticism comes from those who have used polyethers as solubilizing agents in solutions containing compounds which would be expected to form insoluble complexes with polyethers. It cannot, of course, be argued that in these instances the opacity of the preparation prevents detection of the complex. The solutions are perfectly clear to begin with and

(Continued on page 560)

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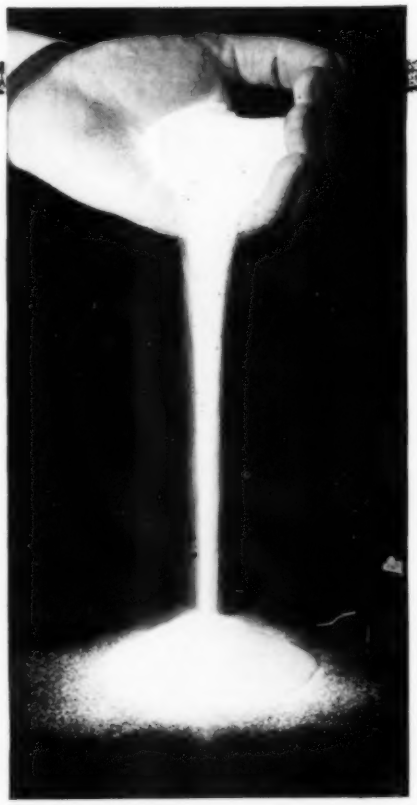

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Cleansing Preparation: *Can you supply me with a formula for a preparation for cleansing normal and oil skins, which would have the following properties: Should be a cream base, foaming on application, with or without added water; should have astringent and mask-like action on the face, but should be easily rinsed off; should not be irritating; should have a cooling action.* COLUMBUS.

The preparation you have in mind would be the result of a fairly extensive research program to be undertaken either by you or a consultant. You might start off with a standard paste cream shampoo formula containing some alcohol as an astringent and a trace of menthol for cooling action

Grainy Salve: *We make a cold salve using as a base 50 per cent of mutton tallow and 50 per cent of petrolatum, along with camphor, menthol, eucalyptus and oil of pine. We have trouble with the tallow granulating after a short time and would appreciate your suggestions as to how we may overcome this difficulty. We fill this preparation hot and wish to continue doing so.* MIAMI.

Granulation is probably due to crystallization of hard stearin out of the tallow and possible insolubility in the petrolatum. It may be possible to modify this by changing the temperature at which the mixture is filled, a lower temperature tending to reduce graininess. You may have to use a tallow with a lower melting point, or the addition of a vegetable or animal oil or lanolin may retard the development of graininess.

Cream Rinses: *We would appreciate receiving information about the composition of typical cream rinses and a formula, if possible.* SOUTH AFRICA.

Cream rinses depend upon a combination of acidifying and conditioning action due to low pH and a quaternary wetting agent. Acidity and the wetting agent remove residual lime soaps left on the hair by the interaction of soap and hard water, while the quaternary, substantive to the hair,

especially at lower pH values, reduces the static charge and leaves the hair manageable. Experiment will be required for the development of desired physical properties, but a good starting point would be four to six per cent of non-emulsifying glyceryl monostearate, one or two per cent of a suitable quaternary wetting agent, about three per cent of a humectant and possibly one-half to one per cent of lanolin.

Liquid Rouge: *I would appreciate receiving from you a formula for the preparation of a liquid rouge.* LOS ANGELES.

An article describing various aspects of liquid rouge formulation appeared in the February 1956 issue of this magazine on page 176, and should supply you with the information you need for developing such a product. You might start with an oily emulsion containing from 10 to 20 per cent of mineral oil, emulsified with self-emulsifying glyceryl monostearate or a mixture of Spans and Tweens and incorporate the desired amount of pigment. Lanolin as an emollient may also be included and one per cent or so of silicone should be useful. Colors should be selected that are stable at the pH of the emulsion.

Pine Bath Oil: *I would appreciate your assistance in formulating a pine bath oil that disperses in the bath water and does not leave a ring in the tub.* CHICAGO.

In the July 1956 issue of this magazine a comprehensive discussion of "Bath Preparations" was published. Along the lines suggested in this article, after selecting a good quality pine oil or compound, this can be solubilized and made water-dispersible by the use of sufficient nonionic wetting agent, polyoxyethylene sorbitol esters being especially suitable.

Foot Cream: *We would like to have a formula for a foot cream containing ingredients that will give a cooling effect.* PHILRDELPHIA.

A standard vanishing cream could be a suitable base for a product of this type—Stearic acid 15.0, triethanolamine 1.5, potassium hydroxide 0.3, glycerin 5.0 and water to make 100 parts. To this add a mixture of menthol, camphor and methyl salicylate for medicinal action, a total of 0.5 per cent probably being sufficient.

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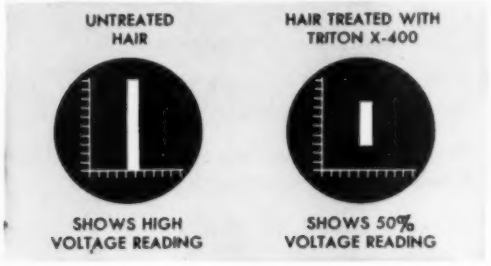

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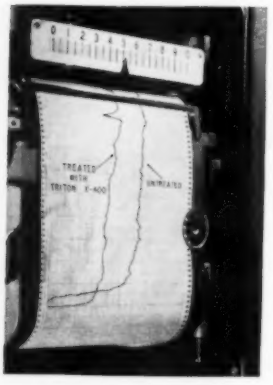

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(Continued from page 554)

remain so for long periods. Here, too, however, further examination would provide an apparently satisfactory answer. In the experience of the author, most of these cases concern the use of polyethers such as Tweens and Pluronics which exhibit very high surface activity. In almost every instance it has been possible to prove that when the concentrations of the interactants are properly adjusted, the insoluble complex forms readily. Furthermore, the lack of evidence may usually be traced directly to a well-known property of surface active agents, the very property which was being utilized to advantage in the formulation. That is, the ability to solubilize ordinarily insoluble materials, probably through the medium of micelle formation. It is incorrect to say that no complexation occurs, but rather that the polyether is present in such excess as to solubilize the complex along with the other active ingredients. A realization and understanding of this pitfall is of particular importance in considering the release of supposedly active ingredients from lotions, creams, ointments and suppositories.

It is axiomatic that a potentially active ingredient cannot exert the effect desired if it is so combined or "tied up" as to transform it, for practical purposes, into an entirely different species. This is particularly true when the solubility characteristics of the free and complexed forms of the drug differ widely. It is precisely this factor to which we may attribute the inactivation of phenolic preservatives by polyethers and the delayed release of aspirin incorporated in carbowax suppository bases.

This explanation, too, has been challenged on grounds which are unwittingly superficial. Numerous examples are cited in which drugs that are either known definitely or which are reasonably expected to complex with polyethers (assuming the previously postulated mechanism to be essentially accurate) exhibit their full pharmacologic action when administered along with polyethers in various parenteral, oral and other dosage forms. This criticism neglects two important factors. These complexes are not, as has been stated previously, firmly bound entities but loosely associated species as implied by the term complex. Like all complexes they dissociate to a degree dependent upon their instability constants. As a result, even though complexation does take place, the very process of dissociation will insure the presence of a certain quantity of uncomplexed drug. Inasmuch as some of the uncomplexed active ingredient is always present in the free state, utilization of that material, although slower, does not cease entirely. (The obvious potential applications of this behavior to depot forms will be considered elsewhere in this paper.) Though the above discussion answers, in part, the criticisms levelled at the idea of inactivation through complexation, a more general and satisfactory explanation is available. This latter answer appears particularly effective in helping to explain activity of oral or parenteral products containing a supposedly seques-

tered active ingredient. It is, simply enough, that under the conditions prevailing in the bloodstream, intestinal tract or stomach the complex is so quickly and/or fully dissociated that the net effect is equivalent to a complete absence of complexation.

One question which is somewhat perplexing and yet often unasked concerns the effectiveness of certain agents employed in dermatologic preparations where complexation with attendant inactivation would be Expected. If it can be assumed, for example, that the therapeutically effective components of coal tar are phenols or carboxylic acids, it seems difficult to account for the excellent results obtained with a mixture of coal tar, Tween 80 and zinc oxide in a white petrolatum base. Similar examples with other polyethers have also been reported and do appear to detract from the explanations given.

Despite the absence of any conclusive evident, it is the opinion of the author that these occurrences may be ascribed to the ability of the surface active polyethers to apparently increase the water solubility of ordinarily insoluble materials. There can be little doubt that the rate of absorption or release of a potentially active agent from an ointment, cream, lotion or suppository depends, at least in part, upon the partition coefficient of the agent between the base and the surface to which it is applied. For the example given, it is not unreasonable to assume that the therapeutically active constituents of coal tar are much more soluble in oily or fatty materials than in aqueous solvents. For this reason, we might well expect that the inclusion of coal tar alone in an oleaginous base would result in a poor situation for the release of the active constituents. We could also expect the concentration of tar required to be fairly high since the release of quantities sufficient to exert the desired effect would be severely limited by an unfavorable partition coefficient. On the other hand, the inclusion of a surface active agent which would serve to alter the effective partition coefficient in such a manner as to favor the aqueous phase, would permit a decrease in the total quantity of coal tar necessary in the product. This more efficient utilization of the coal tar might also be accompanied, for the same reason, by enhanced therapeutic effects. Such seems to be precisely the result achieved in the new formulation of Coal Tar Ointment of U.S.P. XV. The inclusion of but 0.5 per cent Tween 80 has permitted a substantial reduction in coal tar content, decreased incidence of irritation and greater therapeutic value.

The preceding discussion makes it clear that the fundamental studies relative to interaction or complexation do point up areas of possible incompatibility. Of the possible importance of these incompatibilities there can be no doubt. The signs and pitfalls of the past are too evident. Most important, however, is that an understanding of these incompatibilities in many of their ramifications can help the compounder predict and thus avoid them. Even in those instances

(*Continued on page 564*)

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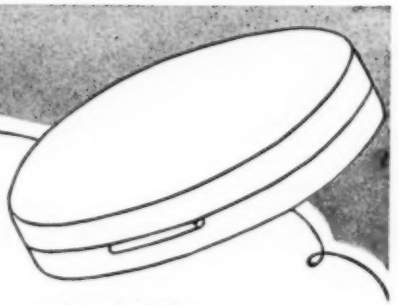

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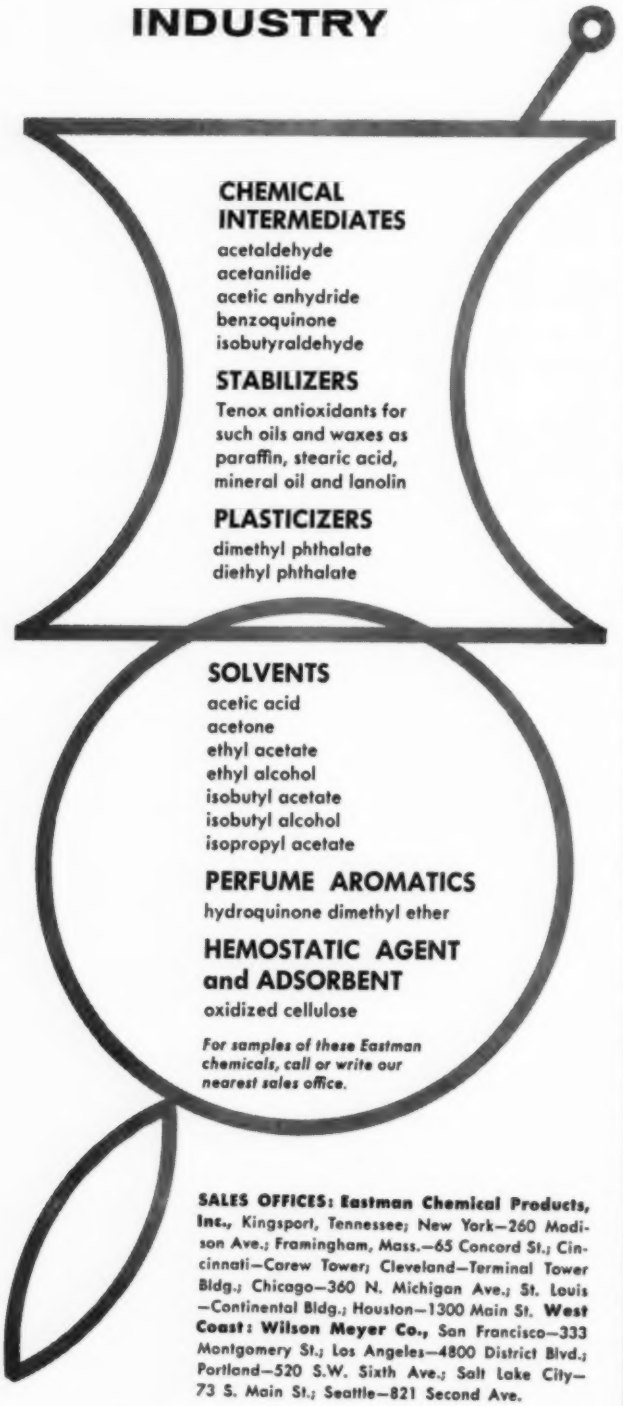

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(*Continued from page 561*)

where avoidance is particularly difficult or actually impossible, the caution born of understanding will allow for maximum efficiency in the use of the polyethers. Despite the more dire motif of this survey, the author by no means wishes to leave the implicaton that the polyethers should be avoided or their use minimized in compounding and formulating. They have proven themselves much too valuable and offer too gre t a number of advantages to be discarded.

In a previous section, reference was made to the potential advantages of complexation in depot forms of medication. This is an area which could profit considerably from further investigation. Though the principle is clear, very little, if any, studies of either a theoretical or practical character have been reported. The properties of the complexes are not known nor have there been any studies concerning their isolation and identification. Such highly important questions as the stability of a drug in the complexed form are as yet unanswered. Other equally important questions also await answering, but certain limitations are plain. Simply, the very nature of these complexes apparently precludes the possibility of their use for sustained release in oral and parenteral preparations. For the moment any application of this concept must be limited to products intended for use in ointment, creams, lotions and suppositories.

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BIOLOGICAL ACTIVITY—CHEMICAL STRUCTURE

(*Continued from page 463*)

proportion of distances between the tip of the upturned thumb of the outstretched hand and any other point on the body. Bond rotation occurs, figuratively speaking of course, when the outstretched hand with thumb pointing up, is turned, so that the thumb points down. The proportion of all distances from the tip of the thumb, now pointing down, to any other point of the body is changed—in other words, figuratively speaking, a rotation of the bond has taken place.

Yet measurement of bond distances has produced data of value. And the study of molecular shapes has also been productive. For example, the molecular shape of diethylstilbestrol is quite similar to that of estrone or estradiol, all of which are estrogenic. Hexestrol is also quite similar in its steric arrangement to estrone and its estrogenic activity is of a

similar order of magnitude. Morphine and demerol which resemble each other in molecular shapes (particularly in their three-dimensional models) also bear a striking similarity of pharmacologic effect. In fact, there is in many cases an unusually regular relationship between antimalarial activity and chemical structure.

To preclude reliance upon the resemblance of molecular shapes as indicative of pharmacological activity, it is to be borne in mind that the molecular shapes of the androgenic and progestational hormones are extremely similar but that their pharmacological activity is vastly different.

Indeed, two substances differing only by a simple methyl radical can have different effects. But this difference in effect is due to a *changed complexion in the molecule as a whole*, with respect to a difference in ionization, in steric effect, in solubility, in oxidation-reduction potential or in other physical respects all of which can act differently upon the matrix of the receptor, or upon the enzyme system which may be a receptor. It is the quality of the *molecule as a whole*, rather than the quality of a specific group or radical in a molecule that determines the biological function of the molecule.

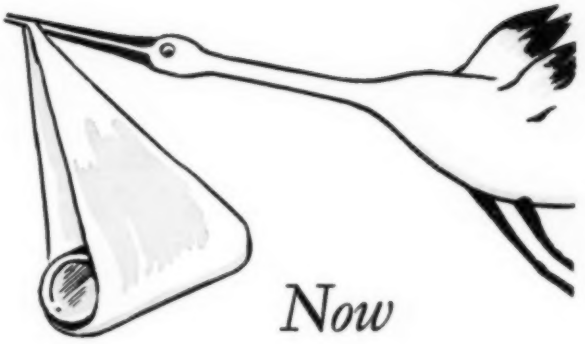
Reliability of Prediction

It is not to be understood that there is no relationship whatsoever between biological activity and chemical structure. There is merely no reliability in prediction nor is there uniformity on which a rule can be based. But though there are many exceptions as well as limitations and conflicting data in the state of our present knowledge of the subject, it is well to consider some similarities.

The introduction of aspirin as a substitute for sodium salicylate was based upon the desire to prepare drugs which would have "preferred" chemical groups which were believed to have more desirable characteristics pharmacologically. Antipyrine thus arose from a study of the quinine molecule, procaine presented a modified and more desirable cocaine, sympathomimetic drugs were prepared which resembled epinephrine, acetophenedin was made when the biological activity of its chemical parent, p-aminophenol was clarified. More recently, the synthetic estrogens, or more properly, chemicals with estrogenic activity were discovered so to say, when their steric resemblance to estrone was noted.

These are examples of a relationship among prosthetic groups, and in fact, certain moieties are recognized, as the benzyl group for relaxation, the dibutyl group for sedation, but it must be borne in mind that the nature of the molecule as a whole determines its biological activity.

Among other definite examples of relationships between biological action and chemical structure is the peak phenomenon, in which there is an increasing accentuation of activity in an ascending order to a peak, of chemicals in the same series, after which there is a



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decline. Comparison among drugs in the same series are done on the basis of this observation.

Finally, there are certain properties that can be ascribed generally to certain groups. Hydroxyl groups affect solubility, i.e. increasing solubility they facilitate diffusibility and in that way are instrumental in creating profound difference between two drugs, which differ only by the presence of a hydroxyl group. The hydroxyl groups of phenols differ in pharmacological effect from those of the alcohols. The difference is probably due to the fact that phenols combine with proteins while alcohols do not. Why phenols combine with proteins may be due to the mechanism of biological antagonism or competitive inhibition whereby a nutrient is made unavailable or otherwise blocked or by a related mechanism intimately involved in enzyme activity.

The carboxyl group also changes physical aspects such as solubility and diffusibility. The sulfonic acid group has an activity similar to that of the carboxyl group but is not as active. In fact, sulfonation is one of the mechanisms by which detoxication takes place.

Among alkyl radicals the methyl group plays an important role in metabolism and can block the effect of a drug or can be blocked itself. For example, the methyl radical may render a substance carcinogenic; 20-methylcholanthrene is a noted carcinogen. The fact that methyl radicals per se are not carcinogenic is obvious. In fact, methylfolic acid, an antagonist to folic acid, has been employed in the treatment of cancer in order to slow down growth of the cancerous process. This is another example of the fact that the nature of a whole molecule, not the function of a chemical group, is determinative of biological activity.

Other studies are also directed to an understanding of the physical nature of biological action. For example the measure of pA (power of antagonism) is a recently reported method by which an antagonistic drug reduces the effect of a multiple dose to the effect of a single dose. Another method, the measure of *Eh*, tests the dynamic resistance of tissue against an oxidant which would change its potential. *Eh* tests the dynamic quality of tissue whereas *pH* tests a static quality. We speak of the *poise* in *Eh* measurement in the same sense as we speak of the buffering potential in *pH*.

In the overall picture, the claim that one drug is superior to another because of the presence of a given group must be critically examined, as the attribute and potentiality of a molecule as a whole is more significant than the effect of a single group. Certain notions advanced as fundamental assumptions are no longer fundamental—and the assumptions may have been presumptious. One such fundamental assumption, which is presently discarded, is the belief that the biological action of a drug is due specifically to its chemical constitution; as a matter of fact, chemical constitution is merely one factor in the nature of the molecule as a whole.

(Continued from page 467)

thetic, the remainder coming from fermentation processes. Because capacity is available for production by either means, future supply should be fairly shortage-proof.

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HAIR AND SKIN CONDITIONERS

(Continued from page 461)

or steroyl group, and its substantivity is so great that its final use concentration need be only the order of 0.2-0.25 per cent.

The quaternary ammonium compounds of greater solubility, such as those made from the lauryl or lauroyl radicals, have marked detergent properties but these substantive properties may be illustrated by the fact that even after fine rinsings the rinse water continues to foam. This is one of the drawbacks inherent in the use of a quaternary ammonium compound as a shampoo.

Cationic compounds, particularly the quaternary ammonium compounds are also playing an increasing role in skin conditioning. Here again the primary consideration is to keep the skin feeling soft and certainly the substantive property of these compounds seems to produce this effect. In emulsions for the skin, however, a large number of other substances may be included. Lanolin, of course, is very much on the top of the list and continues to remain popular —chiefly, I believe, because of the very desirable feel it imparts. In addition, and becoming increasingly popular are the silicones—not only because of their water repellent properties—but because they seem to contribute a very desirable feel to the applied film. Since the most important reason for the use of creams is to keep the skin soft, such an inclusion will probably become more popular.

In theoretical discussions of skin care the so called "acid mantle" of the skin is a factor which is being strongly considered. The argument by its proponents lies in the fact the pH of the liquids bathing the epidermal tissues have a pH in the range of 5.5 and, therefore, any preparation used for cosmetic purposes should have much the same pH since an alkaline medium may interfere with its well being. The argument has not really been proved pro or con, but it has many adherents and, therefore, there are a large number of skin preparations appearing which have a slightly acid pH.

In the so-called moisturizing creams, which will be

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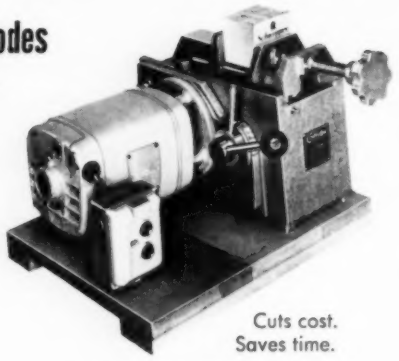

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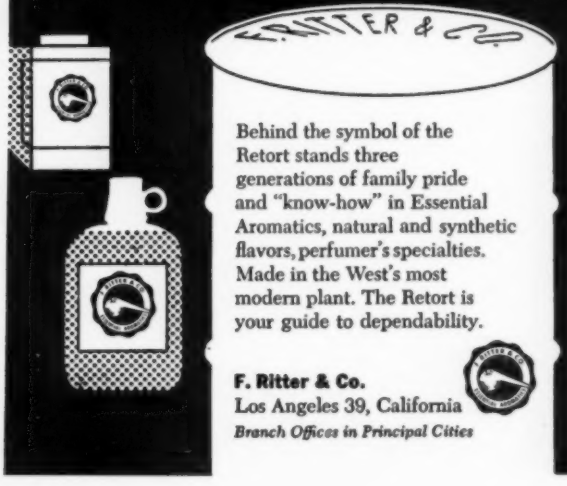

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touched on here briefly, the problem would evolve into determining a set of conditions to be imparted to a vehicle to best allow water absorption by the skin to take place. Certainly I think that an important bearing on the problem would be the pH of the medium. There is some good work now in progress on this problem but as far as I know there have been no definite conclusions as yet. I am sure that these will follow.

HIF . . . SPOTLIGHT ON MEDICAL PROGRESS

(Continued from page 459)

show how the Foundation performed in this instance for our industry—and as an example of what similar agencies can do for theirs—it might be helpful to cite a typical HIF effort.

In its campaign to expand voluntary health insurance, HIF found that Blue Cross, Blue Shield and other private insurance companies were reluctant to expand existing health insurance and to provide more comprehensive coverage. This reluctance was justified, since it stemmed from a basic lack of information about the financial risks involved in such expansion. Furthermore, it was not practical for any one company to undertake the vast research job needed to establish actuarially reliable facts, and the threat of anti-trust proceedings blocked any combined attempt to underwrite the considerable expense entailed in such a survey.

To find a way around this impasse, HIF volunteered to make the survey, to finance it and to make the results available to all that wanted them. It invited a number of insurance agencies to help design the type of study needed, and the response was almost unanimous.

The result was one of the most widely acclaimed research projects ever undertaken by the Foundation. The compliments that poured in on HIF from insurance companies were heartwarming, and some said it was no coincidence that a substantial increase in the breadth and scope of voluntary insurance followed closely on the completion of this jointly designed study.

Here, perhaps, is the secret of HIF's success. With its broadly based industry support, it has the funds and the prestige to step in where one company or a group of companies cannot act alone. And it is here, too, that other industries might well copy the HIF formula. True, obtaining information on the financial risks involved in expanding and improving voluntary health insurance had no direct, primary effect on sales in the drug industry. But the secondary effects were far-reaching.

The additional information enabled the insurance companies to bring many more Americans into their plans. And with insurance against the costs of medical care, they, in turn, were encouraged to make better use of the medical care facilities available. Ob-

viously, such use entails greater use of drugs and medicines. The overall result: better health for the American people and better financial health for the drug and chemical industries.

Of course, not all of the Foundation's projects produce such tangible results. Many are undertaken with no hope of immediate result but merely to meet a pressing public need, with the expectation that they will prove rewarding in the long run. In the basic field of financing and organizing personal health services, for example, no large-scale research studies had been conducted for almost 25 years. Accordingly, the Foundation made a grant to the School of Business Administration at Columbia University for a thorough study of the methods whereby Americans budget and pay for medical care. The resulting report, published in book form, was the first comprehensive analysis of medical care financing since before the depression of the 1930's.

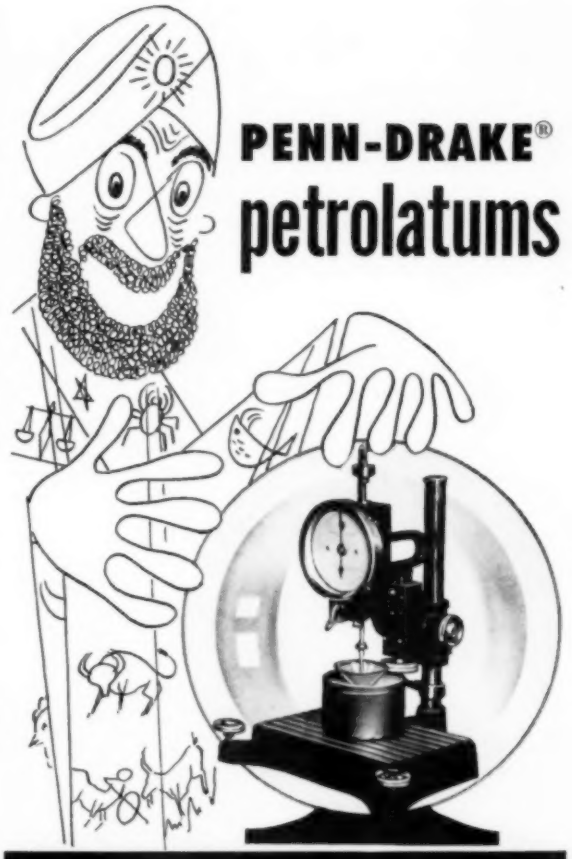
At present, there is great pressure on voluntary health insurance agencies for coverage of such non-hospital services as doctors' home and office calls. The agencies recognize the need for such coverage, but again, they are held back by lack of knowledge of the financial risks involved. Too, some in the medical profession are fearful that insurance against doctors' services outside the hospital may eventually lead to a basic reorganization of medical practice in the form of group practice, with salaries for physicians replacing the current pattern of private practice on a fee-for-service basis.

To explore this area, therefore, the Foundation has begun surveys in both the United States and Canada of prepayment plans, some of them twenty years old, set up by local medical societies. The Bureau of Public Health Economics of the University of Michigan's School of Public Health will report next year on a successful prepayment plan in operation in Windsor, Ontario, Canada. A similar report will be made by the Institute of Public Affairs of the University of Washington on two plans in the state of Washington.

Other studies are looking into the problem of providing health insurance for persons without a common employer and for people with relatively low incomes. The Foundation also is sponsoring a nationwide survey of the social and health conditions of persons 65 and older, to obtain information needed to offer them improved health services.

Of course, the Foundation's activities would be seriously hindered by inadequate public relations techniques. To assist it in disseminating the results of its research projects to as many publicity outlets as possible, it has retained a skilled New York public relations firm, Affiliated Public Relations, Inc., to assist in both preparing and placing its reports. It also publishes a monthly "Vital Statistics" bulletin, distributed to thousands of opinion molders throughout the country, on the health advances that have been made and the problem areas that remain.

For the sake of examination, and to help other indus-



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tries interested in setting up an HIF-type organization of their own, I think we can list the Foundation's essential characteristics under three main headings:

1—A sincere desire to advance the public good. The Foundation has no axe to grind. Its sole purpose is to do what it can to further the cause of better health. Whatever benefits accrue from such activity for its industrial sponsors are of secondary importance.

2—Sound, reliable research. You can't be very effective in any endeavor unless you have all the facts. The first and most important requisite of any public betterment organization is to know what you're talking about.

3—Skillful use of the most advanced public relations techniques. You can have a vitally important story to tell, but unless you can bring it before the public, you might as well remain silent.

When W. L. Dempsey, former president of Sharp & Dohme, stepped down in May as chairman of the Foundation's Board of Directors, he described the agency as representing "the sincere efforts of a group of industrialists to contribute in a very special manner to the improvement of medical care and thus to the health of the American people." Both he and President Bugbee agreed that its development has reflected the intent of its sponsors—to urge further progress in health through a continuous improvement of our present system of health services. This system, in turn, is and should be based on assumption by the individual of the responsibility for his own well being, with government participation and intervention confined to those areas where government alone can serve.

"During these first six years," Mr. Bugbee said in his annual report, ". . . the Foundation has made tangible many of the objectives that its own organizers once feared were too broad and perhaps idealistic. Meanwhile, however, other goals which have been set over the years may at this time seem somewhat out of reach or beyond attainment. But as recognition of the Foundation grows and as support from foresighted leaders in industry continues, there is every reason to look forward to further accomplishment in the public interest. The Foundation program has the future in mind and is designed to show guidelines for the logical evolution of American medical care.

"In any case, the record seems to speak for itself. I believe there is sound evidence that the vision and wisdom of the sponsors of Health Information Foundation are bringing increasingly better health care to the people of the United States. In my estimation, it is a creditable record, one of which all of the industries contributing to the Foundation may be most proud."

We who have sponsored this work are encouraged indeed by its record to date. We clearly recognize that the Foundation must continue to play its effective role as a truly constructive force against the threat of socialized medicine, and in its wake, a completely socialized economy.

We should not be lulled to sleep by the favorable

political climate we now enjoy. The advocates of socialized medicine lurk in the near background ready to seize the advantage when the opportunity presents itself. We must not only be on guard; we must close the loopholes that remain open. Given enough time, we can deprive the socialistic-minded of any excuse to relaunch their campaign.

The more the Foundation succeeds in abolishing any possibility of socialistic meddling with medical care, the more profoundly will it serve and protect the public interest.

PHARMACEUTICAL AEROSOLS FROM IDEA TO PRODUCT

(Continued from page 475)

For certain types of products, notably cosmetics, the aesthetics of the container is important and may overshadow cost differences.

Valve selection is first of all governed by choice of a container. Metal containers use a valve staked into a one-inch cup, whereas glass containers require a special steel or aluminum ferrule cup valve. Plastic containers are made with a valve already in place. Further selection of the valve is governed by whether the product is to be a spray or a foam. Various orifice sizes in both the valve and actuator are available to give different discharge rates and spray characteristics. Materials of construction of the valve components have to be checked with the particular formulation. Elastomers may swell, plastics may shrink, and the metal parts may corrode.

Protective domes for the valves are made of both plastic and metal for all valves. Aside from the question of chemical attack by the product, selection of the protective dome is purely on an economic and aesthetic basis.

Laboratory Testing

Aerosol products must be tested in the laboratory for functionality. Is the spray pattern proper? Does the valve operate satisfactorily? Does the product meet federal and state regulations? Are there any hazards in the use of the product? And other questions that arise can be answered only by laboratory testing. In the case of pharmaceutical products, animal testing and clinical work must be carried out in conjunction with the laboratory work. Should the product be of a germicidal nature, bacteriological testing must also be carried out. Assays on the active ingredient must be made over a period of time to determine its shelf life in the aerosol package. Because the environment is different in an aerosol package, previous testing of the active material in conventional packaging is not always reliable.

Shelf Life Testing of Complete Aerosol Package

The complete package, using the selected container and valve, should be shelf tested before production is started. It is possible to get an accelerated shelf life

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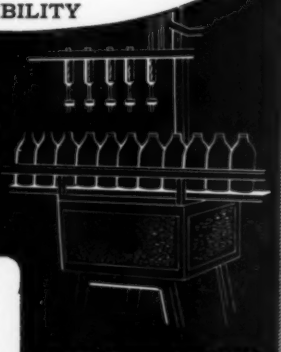

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by placing the containers, both upright and on their sides, in an oven at a temperature of 100° F. Using temperatures higher than this can be unrealistic and lead to erroneous conclusions. Newly developed methods of checking tin plate corrosion make it possible to come to a definite conclusion as to the suitability of a particular container in four weeks.

Plastic containers, although not presenting any corrosion problems, do present problems of permeability and deformation. Propellents of the type 11 are especially prone to permeate plastics. Moisture permeation, not only out of the container but also into the container, is an important factor. With most aerosol products, which contain no water, moisture leakage is into the container rather than outward.

Glass containers should be checked for possible hazards in use. The plastic coated glass container is supposed to retain the glass when the container breaks from a six-foot drop. Uncoated glass containers can be used when the pressure does not exceed 15 lbs./sq. in. gauge at 70° F.

After the product has been shelf tested and approved, even minor changes in the package components must be carefully rechecked. Shelf life testing of powder aerosol products is especially critical. The containers must be activated periodically during the test. A valve used on a powder product may indicate little or no seepage immediately after crimping, but after activation may show excessive seepage and subsequent clogging. The clogging problem must be checked very thoroughly. Although in one hundred containers none may be found to be defective, when a thousand containers are checked, two or even more might be found to be defective, which is too great a tolerable percentage.

Consumer and Market Testing

The acceptability of an aerosol product can only be checked by a consumer and market test. Inasmuch as an aerosol package is inherently more expensive than conventional packaging, the consumer must find some advantage to this package. For example, a six-ounce can of shaving cream which sells for 79 cents will last about two months; a bar of shaving soap costs 10 cents and lasts for six months. That the consumer is willing to pay this difference for the functionality is evidenced by the over forty million cans of shaving cream sold in 1955.

Hair lacquers, which could be purchased in dime stores for 25 cents or less, had few sales. In an aerosol, at a cost of $1.25 and more for a five-ounce container, over fifty-three million were sold last year. Insecticides are another example where, in spite of increased cost, the sales have skyrocketed.

Pilot Stage Production

Every aerosol product is different. As mentioned, there are many types of containers, many types of valves, different protective domes, and various formu-

lations. Each product presents different problems. In some products there may be as much as 90 per cent propellent; in others there may be as little as seven per cent. New acqueous products now on the horizon may have as little as two per cent propellent. Various propellents and mixtures of propellents must be used. In some cases it is even necessary to use the propellent as part of the solvent for the formulation.

All of these factors must be considered and worked out in pilot scale operation. This pilot stage production must be flexible enough to handle everything from a 10-cc. plastic coated bottle to a seventeen-ounce metal can.

There are two different methods of filling the propellent into the container, the so-called cold fill method and the pressure fill method. Where there is a problem in chilling the concentrate, as with aqueous products, the pressure fill method must be used. The cold fill method, because of the faster production rate, is always used when possible.

Full Scale Production

Contract fillers and formulators are geared to handle the needs of any sales department, whether it be one thousand units or a million.

The time required to take the product from an idea to full scale production is from one month to as long as a year, or even more. Contract fillers who have the facilities and equipment available can get into production with little loss of time. If the services of a contract filler are to be utilized to produce the package, it is advisable to contact him early in the planning, ideally, right after you have the idea. Much time can be saved by avoiding the mistakes which have already been made and by taking advantage of experience and know-how that the contract fillers have accumulated. Furthermore, by early cooperation with your contract manufacturer you can draw on his laboratory facilities and personnel who are skilled in the research and development of aerosol products.

PATENT THOUGHTS AND TRENDS

(*Continued from page 497*)

Menthol from Mint Oils by Chromatographic Absorption

Menthol and menthone can be obtained in substantially quantitative yields as pure compounds from mint oil, by chromatographic adsorption, according to U. S. Patent No. 2,760,993, assigned to the Ohio State College Research Foundation.

It is also claimed that no isomerization (which would result in isomers of less value) occurs during the chromatographic process. The menthol and menthone obtained by this patented process are both laevo-active, the menthol meeting the U. S. Pharmacopoeia specifications without further purification.

The patent gives the following example, among others:

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announces the
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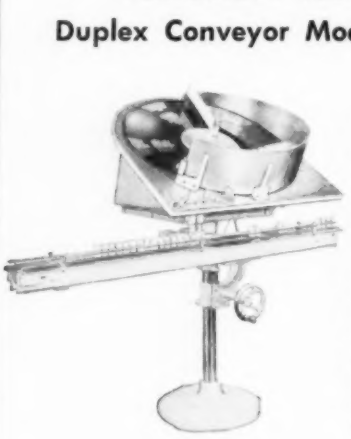
Duplex Conveyor Model, T-423



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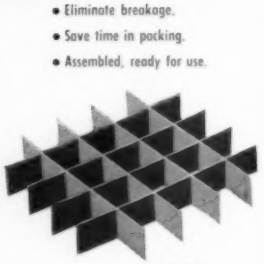

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Example I:

A Chinese mint oil containing 65.2 per cent menthol, 12.5 per cent menthone, and 1.8 per cent menthyl esters, was used as the raw material. Activated carbon (Carbide and Carbon Chemical Corporation, "Columbia" solvent recovery grade) was ground and sieved to 100 or 200 mesh and used as adsorbent. A 6.5 cm. inside diameter glass column was packed with 1200 grams of the aforesaid adsorbent to a height of approximately 50 cm. Freshly steam-distilled mint oil in the amount of 25 grams was dissolved in a hydrocarbon solvent with a boiling range of 77-115° C. (Skellysolve D) to make up 150 ml. of solution and was adsorbed at the top portion of the column. The column was then developed successively with 1000 ml. of a 80.20 by volume mixture of said hydrocarbon solvent (Skellysolve D): carbon tetrachloride, then with 600 ml. of pure carbon tetrachloride, and finally with 700 ml. of 90:10 by volume mixture of CCl_4:MeOH. The linear rate of flow of eluant was maintained at about 10 mm./min. and the oil to adsorbent ratio was 1:50. 100 ml. fractions of percolate were collected and the solvents were evaporated. Three clear-cut fractions were obtained: the terpenes and menthyl esters were washed out first; the menthone fraction came out next; and the last fraction contained only menthol. The melting point of the menthol fraction was within the U.S.P. specified range of 41 to 43° C. The menthone fraction was nearly pure, as indicated by the refractive index. The yield of menthol and menthone were 95 per cent and 90 per cent respectively. The losses occurred mainly during the evaporation of solvent.

RECENT PATENTS

2,754,297—**Olin Mathieson — Aminoalkyl-Esters of Penicillin Preparation.**

2,754,299—**Lasdon Foundation — Heterocyclic Chalcones.**

2,754,302—**J. R. Geigy—2, 6-Dimethyl-4-Pyridinol-Phosphoric Acid Esters.**

2,754,305—**Farbwerke Hoechst—Non-Yellowing Triethanolamine Soaps.**

2,754,324—**Dow—*a*, *a*-Dichloropropionates of the Halo-Aryloxy Loweralkanols.**

2,754,327—**Cutter Labs. — N, N - Dialkylsalicylamides.**

2,755,221—**Endo Labs.—Enhancing Solubility of Chloroethyltheophylline by Nicotinamide.**

2,755,274—**Chemie Gruenenthal (Germany)—Penicillin-Streptomycin Compound.**

2,755,275—**Abbott Labs.—Sulfating Chitin.**

2,755,276—**Am. Cyanamid—Δ^4-Pregnenes.**

2,755,278—**Hoffmann-La Roche — Thiamorpholones.**

2,755,279—**Burroughs Wellcome—1-Alkyl 2, 5-Dimethyl Piperazines.**

2,755,281—Ciba Pharmaceutical — Semicarbazones of Phenanthroline-Quinones.
2,755,283—Olin Mathieson—Halogenated Lower Alkanal Adducts with Nicotinamide.
2,755,284—Hoffmann-La Roche—Pyridoxal Phosphate Manufacture.
2,755,287—Ciba Pharmaceutical—Indolines.
2,755,288—Am. Cyanamid — 3(1, 2 - Dithianyl) - Aliphatic Acids.
2,755,289—G. D. Searle—Anhydro Derivatives of 2, 4b-Dimethyl-2-Hydroxy-4, 7-Dioxo-1, 2, 3, 4, 4a, 4b, 5, 6, 7, 9, 10, 10a-Dodecahydrophenanthrene-1-Propionic Acid.
2,755,292—Organon Labs.—Phenyl Propionate of Testosterone.
2,755,299—G. D. Searle—Ar'-Cyanomethyl Chalcones.
2,756,176—U. S. A.—Rinderpest Adjuvant Vaccine.
2,756,177—Hoffmann-La Roche — Making Fat - Soluble Vitamin Active Powder.
2,756,178—J. R. Verblen—Lanolin Oil Shampoo.
2,756,179—Olin Mathieson—Production of Δ^1 Bonds in the A Ring of the Cyclopentanopolyhydrophenanthrene Nucleus by Streptomyces Lavendulae.
2,756,226—Biochemie (Germany) — Acid - Stable Penicillins.
2,756,228—Burroughs Wellcome — Manufacture of 6-Mercaptopurine from Aminoglyoxaline-5-Thiocarboxamide.
2,756,230—Am. Cyanamid—2, 4, 5-Triaminodihydropyrimidine-6-Sulfonic Acid.
2,756,231—Am. Cyanamid—4, 4'-Dicarbethoxy-1-1'-Ethylenedipiperazine Derivatives.
2,756,232—Am. Cyanamid — Substituted - Carbonyl-4-Carbamyl Piperazines.
2,756,234—Parke, Davis—Anthrapyridones.
2,756,236—Hoffmann-La Roche—3-(Hydroxycarbamyl)Methyl-1-Methyl Pyridinium Iodide.
2,756,237—Reilly Tar & Chemical—Polyalkanol Pyridines.
2,756,238—Monsanto — 2 - Mercapto - 4 - Substituted Thiazoles.
2,756,244—Syntex—19-Norandrostanolones.
2,757,122—Chas. Pfizer—Injectable Composition for Treating Poultry.
2,757,123—Chas. Pfizer—Oleandomycin.
2,757,124—Merck—Medicinal Tablets.
2,757,125—Colgate-Palmolive—N - Higher Alkyl-4-Carboxy-2-Pyrrolidones.
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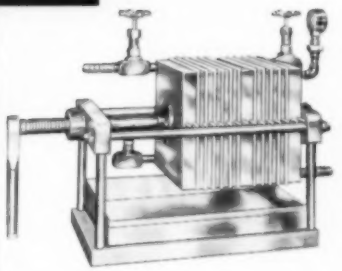
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2,669,536—I. M. Bunding
2,669,537—R. E. Thompson } Adrenal gland stimulating substance, Armour & Co. v. Wilson & Co., Chicago, filed July 18, 1956.

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2,732,327—W. K. Teller, Anti-perspirant Stick, Joseph Seagrams v. Northam Warren Corp., San Francisco, filed July 17, 1956.

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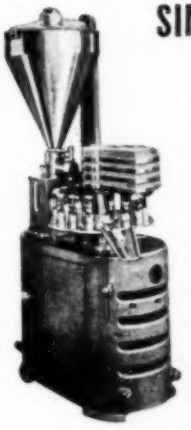

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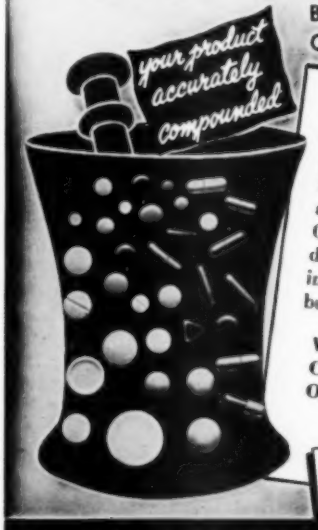

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